# NMS User's Guide

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# About This Guide

## Document Purpose and Intended Audience

This guide describes the web-based Network Management System (NMS) used for configuration and management of select Network Extenders, Micro DSLAMs, Mini DSLAMs, the MUM2000-2 Multiplexer Uplink Module, and the BSX8000-5 Broadband Services Switch.

## Document Summary

| Section | Description |
|---|---|
| *Chapter 1, NMS Introduction* | Describes the system requirements for the NMS, lists primary device defaults, and describes the use of RAM and NVRAM in NMS-managed devices. |
| *Chapter 2, Initial Configuration* | Explains how to set up a Windows PC for initial access to the NMS. |
| *Chapter 3, Navigating the NMS* | Describes the main window and menus of the NMS. |
| Chapter 4, *System Configuration Screens* | Describes the System Configuration screens. |
| Chapter 5, *System Utilities* | Describes the System Utilities screens. |
| Chapter 6, *Virtual Front Panel Buttons* | Describes the virtual function buttons available on the graphical depictions of the devices in the NMS. |
| Chapter 7, *Troubleshooting the NMS* | Lists some typical problems and solutions. |
| *Appendix A, Connector Pin Assignments* | Shows the pinouts of the management port used for access to the NMS. |
| *Index* | Lists key terms, concepts, and sections in alphabetical order. |

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| Document Number | Document Title |
|---|---|
| CLI-A2-GB20 | *Command Line Interface for 4000E and 12000E BACs, Micro DSLAMs, and Network Extenders User's Guide* |
| MTM-A2-GB20 | *Multimedia Traffic Management User's Guide* |
| SNMP-A2-GB20 | *SNMP for 12000/4000 BLCs and Micro DSLAMs User's Guide* |

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# NMS Introduction

# 1

## Overview

Paradyne's Network Management System (NMS) allows you to access statistical and configuration data through a web server residing within the firmware of select Network Extenders, Micro DSLAMs, Mini DSLAMs, and MUM2000-2 Multiplexer Uplink Modules and BSX8000-5 Broadband Services Switches installed in 4000 and 12000 BLCs.

## System Requirements

The following are required for use of the NMS:

- A straight-through RJ45 to RJ45 Ethernet Cable

  Required for establishing a direct connection from the Network Extender, Micro DSLAM, Mini DSLAM, or BLC management port to your PC for initial configuration.

- Web Browser

  Required for running NMS. Compatible web browsers include Microsoft Internet Explorer (version 4.0 or higher) and Netscape Navigator (version 4.0 or higher). NMS is optimized for use with Internet Explorer.

  Use your browser's default settings when running NMS. JavaScript must be enabled.

  Set your screen resolution to 1024 x 768 pixels or higher for optimum viewing of NMS screens.

## NMS Users

There are two classes of NMS users: General users and Superusers. General users have read-only access and cannot make any changes. Superusers have full access to make changes and update configurations. The NMS supports up to three Superusers or three General users simultaneously. Only one class of user can log in at the one time, else a "Server Busy..." warning message appears.

See Table 1-1 for the default usernames and passwords.

# Default Settings

No configuration is necessary for a Network Extender, Micro DSLAM, Mini DSLAM, or BLC to operate at default settings. Main defaults are listed below. Your DSLAM or access card installation instructions may contain more detailed and device-specific information.

## User Access

Usernames and passwords are case-sensitive.

**Table 1-1. Default Usernames and Passwords**

| Username | Password | Access Type |
|---|---|---|
| superuser | Password | Read/Write |
| general | Password | Read Only |

Community strings are case-sensitive.

**Table 1-2. Default Community Strings**

| String | Access Type |
|---|---|
| Password | Read/Write |
| Password | Read Only |

## System Defaults

**Table 1-3. Default IP Addresses**

| Model | Default IP Address |
|---|---|
| Network Extender Subscriber Unit | 192.168.254.251 |
| Network Extender Provider Unit | 192.168.254.252 |
| Micro DSLAM | 192.168.254.252 |
| Mini DSLAM | 192.168.254.252 |
| 4000 BLC Slot 5 | 192.168.254.252 |
| 12000 BLC Slot 13 | 192.168.254.252 |
| 12000 BLC Slot 14 | 192.168.254.253 |

**Table 1-4. Default Management Parameters**

| Parameter | Default |
|---|---|
| Gateway | 0.0.0.0 |
| Inband Management | disabled |
| Inband Management VLAN ID | 0 (off) |
| Mgmt (Management) IP Address Filter Range | 0.0.0.0 - 255.255.255.255 (all) |
| Subnet Mask | 255.255.255.0 |
| TFTP (Trivial File Transfer Protocol) | on |
| Uplink DSLAM Interconnection | 1 (neither/off) |

## Uplink Interface Defaults

**Table 1-5. Default 10/100BaseT Ethernet Uplink Settings**

| Parameter | Setting |
|---|---|
| Duplex Mode | Auto-Negotiate |
| Speed | Auto-Negotiate |

**Table 1-6. Default E1 Uplink Parameters**

| Parameter | Default |
|---|---|
| Frame Type | CRC (Cyclic Redundancy Check) |
| Line Code | HDB3 (High Density Bipolar 3) |

**Table 1-7. Default T1 Uplink Parameters**

| Parameter | Default |
|---|---|
| Frame Type | ESF (Extended Super Frame) |
| Line Code | B8ZS (Bipolar with 8 Zero Substitution) |
| Line Buildout | 0 dB |

## Circuit Defaults

Circuit defaults common to all devices are listed below. For information regarding model specific circuit parameters, refer to the Network Extender, interface module, Micro DSLAM, or Mini DSLAM Installation Instructions specific to the model you are installing.

**Table 1-8. Default Circuit Parameters**

| Parameter | Default |
|---|---|
| Backbone-VLAN | 0 (off) |
| Circ. ID (Circuit Identification) | n/a (no default) |
| Flood | Upl (Uplink) |
| IP Range 1 | 0.0.0.0 – 255.255.255.255 |
| IP Range 2 | 0.0.0.0 – 0.0.0.0 |
| Pri (VLAN Priority) | 0 (none) |
| Protocol | All (all traffic) |
| VLAN Range | 0–0 (off) |

## SNMP Trap Defaults

**Table 1-9. Default Notification IP Addresses**

| Parameter | Default |
|---|---|
| IP Address 1 | 0.0.0.0 |
| IP Address 2 | 0.0.0.0 |
| IP Address 3 | 0.0.0.0 |
| IP Address 4 | 0.0.0.0 |

**Table 1-10. Default SNMP Trap Settings**

| Parameter | Default |
|---|---|
| Authentication Trap | enabled* |
| Environment Trap | enabled* |
| Cold Start Trap | disabled |
| Module/Port Trap | disabled |

* No trap is sent until a notification IP address is defined.

# RAM and NVRAM

Configuration backup is inherent in Paradyne's Network Extenders, Micro DSLAMs, Mini DSLAMs, and 4000 and 12000 BLCs. Upon intial power up, default parameters will remain in place unless changed through the NMS or SNMP. Once changed, new configurations will automatically be recorded in both Random Access Memory (RAM) and Non-Volatile RAM (NVRAM). Although data stored in RAM will be erased if the unit loses power, data stored within NVRAM will remain intact permanently unless deliberately cleared or reconfigured.

# Local Files

Individual port configurations can be saved locally on your PC as a backup and/or for use as a template for future configurations. Once a device has been configured as desired, the settings can be uploaded through a Trivial File Transfer Protocol (TFTP) tool with a GET command and the following information:

Host name: [DSLAM IP Address]
Remote filename: NVR_CFG.bin.[superuser password]
Local filename: [user preference]

Port configuration files also can be downloaded from a local file to a DSLAM or BLC using a TFTP SET command. Refer to your TFTP user manual for further instructions.

Only individual port configurations can be saved to a local file. Chassis configurations cannot be uploaded or downloaded; they must be manually configured for each unit.

# Replacing an Interface Module

Table 1-11, Replacing an Interface Module, shows how configurations are affected by the replacement of an interface module.

**Table 1-11. Replacing an Interface Module**

| If the replacement interface module is: | Then module configurations will revert to: |
|---|---|
| Same model as previous, new or unconfigured | Same configurations as previous module |
| Same model as previous, already configured | Same configurations as previous module |
| Different model than previous, new or unconfigured | Original default settings (see *Default Settings* on page 1-2) |
| Different model than previous, already configured | Original default settings (*Default Settings* on page 1-2) |

A replacement module (of like model) will take on the same configurations as the previous module only if the MUM or BSX remains in the chassis and the chassis retains power during the interim. Otherwise the replacement module will revert to original default settings.

# Replacing an Uplink Module

Clear the NVRAM of a previously configured MUM or BSX before using it as a replacement in a different chassis. Once NVRAM has been cleared, the MUM or BSX will revert to default settings.

**Table 1-12. Replacing a MUM or BSX**

| If the replacement uplink module is: | Then the uplink module will revert to: |
|---|---|
| Same model as previous, new or unconfigured | Same configurations as previous uplink module |
| Different model than previous, new or unconfigured | Same configurations as previous uplink module |

A replacement MUM or BSX will take on the same NMS configurations as the previous MUM or BSX only if there is at least one interface module installed in the BLC and the BLC retains power during the interim. Otherwise, the replacement module will revert to original NMS default settings.

### NOTE

SNMP configurations will always revert to original default settings, regardless of whether the replacement MUM is new and unconfigured or power is sustained.

# Clearing NVRAM

Clearing NVRAM on a BLC, Micro DSLAM, Mini DSLAM, or Network Extender will restore all chassis and port configurations to original default settings.

### CAUTION

**Clearing NVRAM to restore original default settings includes restoring the default IP Address, Subnet Mask, and Gateway. Additionally, Inband Management will revert to its original default setting (OFF) and you will be required to establish a direct connection with the Network Extender, Micro DSLAM, Mini DSLAM, or BLC for any subsequent configuration.**

## Network Extender

The reset button is located behind a small hole on the left side of the faceplate of the Network Extender. Use a straightened paper clip to gently push the button. Wait a few seconds until the Port LEDs flash green. Gently push the reset button again during the time that the LEDs are flashing. NVRAM is cleared, and all configurations on the unit are set to the factory defaults.

### Micro DSLAM

NVRAM on the Micro DSLAM can only be cleared using Command Line Interface (CLI). See the *CLI User's Guide*. The Reset Button on the Micro DSLAM will reboot the unit but will not clear NVRAM. To reboot, use a paperclip, mechanical pencil, or similar tool to press and hold the Reset Button on the front of the chassis for 10 seconds, or click the Reset Button depicted in the NMS Micro DSLAM Main Window, then click on Yes and Submit.

### Mini DSLAM

Using a paperclip, mechanical pencil or similar tool, press and hold the Reset Button on the front, left-hand side of the chassis for 10 seconds.

### BLC

Install the MUM or BSX you wish to clear into a powered 4000 or 12000 BLC devoid of interface modules. (If there are interface modules installed in the BLC, it is not necessary to completely remove them. Slide them out of the chassis far enough to disengage the interface module connector at the back of the chassis and ensure that the power LED on the interface module is no longer illuminated.) Allow a minimum of 40 seconds to pass with the MUM or BSX running in the chassis before reinstalling any of the interface modules.

# Initial Configuration

# 2

## Establishing a Connection

Connecting to the NMS comprises these steps:

- Configuring your PC. See *Configuring Your PC for NMS* on page 2-1.
- Connecting your PC to the device to be configured. See *Connecting your PC to the Management Port* on page 2-2.
- Opening the NMS with your web browser. See *Launching a Web Browser and Logging In* on page 2-2.

For a Network Extender, you must use the Command Line Interface to establish the Network Extender's IP address. See the installation instructions for your Network Extender for information.

## Configuring Your PC for NMS

To access the NMS directly, your PC must be on the same subnet as the device you connect to. The following instructions are for a Windows XP operating system.

### ▶ Procedure

To configure a PC for use with the NMS:

1. In the Windows task bar, click on the Start button, and then click on Control Panel.
2. Double-click on the Network Connections icon.
3. In the LAN or High-Speed Internet window, right-click on the icon corresponding to your network interface card (NIC) and select Properties. (Often this icon is labeled Local Area Connection.) The Local Area Connection dialog box is displayed with a list of currently installed network items.
4. Ensure that the check box to the left of the item labeled Internet Protocol (TCP/IP) is checked, and click on Properties.
5. Write down the current IP Address and Subnet Mask in the Internet Protocol (TCP/IP) Properties dialog box. When you are done using NMS, you will need to reconfigure your PC with these values.

6. In the Internet Protocol (TCP/IP) Properties dialog box, click in the radio button labeled “Use the following IP address” and type 192.168.254.x (where x is any number between 3 and 250, inclusive) in the IP Address field.
7. Type 255.255.255.0 in the Subnet Mask field.
8. Click on OK twice to confirm your changes, and close the Control Panel.

# Connecting your PC to the Management Port

The MGMT (Management) Port does not have switching capabilities; its main purpose is to allow a direct PC connection for SNMP and NMS access. A direct connection with the MGMT Port may also be used to access the management system with Command Line Interface (CLI) via Telnet (see the *CLI User's Guide*).

The 10/100 Ethernet MGMT Port auto-negotiates speed and duplex mode; these configurations cannot be set on the Micro DSLAM, Mini DSLAM, or BLC. For the best configuration results, your PC should be set to auto-negotiate speed and duplex mode as well. If your PC cannot be configured to auto-negotiate, speed may be set at either 10 Mbps or 100 Mbps but duplex mode must be set to Half Duplex; a 10/100BaseT Ethernet MGMT connection cannot be made if your PC is set to Full Duplex.

Using a straight-through Ethernet cable (see *10/100BaseT MGMT Connector* in Appendix A, *Connector Pin Assignments*), connect your PC to the Ethernet RJ45 MGMT Port on the front of the Micro DSLAM, Mini DSLAM, MUM, or BSX faceplate and verify the connection. The MGMT LED will illuminate green or amber (depending on the unit) to indicate an Ethernet connection has been established.

On a Network Extender, which has no management port, you can connect a PC to one of the Ethernet ports. See the installation instructions for your Network Extender for information.

# Launching a Web Browser and Logging In

You can now access the NMS via the default IP address.

### ▶ Procedure

1. Launch a web browser such as Microsoft Internet Explorer or Netscape Navigator.
2. Type the Micro DSLAM, Mini DSLAM, or uplink module's default IP address (see Table 2-1, Default IP Addresses) into the address field at the top of the browser window and press the Enter key.

**Table 2-1. Default IP Addresses**

| Default IP Address | DSLAM Type or Slot Where Uplink Card Resides |
|---|---|
| 192.168.254.251 | Network Extender Subscriber Unit |
| 192.168.254.252 | Network Extender Provider Unit, Micro or Mini DSLAM, 4000 BLC Slot 5, or 12000 BLC Slot 13 |
| 192.168.254.253 | 12000 BLC Slot 14 |

3. The NMS Log In window will pop up. Enter default username (**superuser**) and password (**Password**). Both are case-sensitive. You must log in as a superuser to make configuration changes.
4. Click on OK.

Once you have logged into the NMS, use the Tab key or your mouse to move from field to field rather than pressing the Enter key. Internet Explorer equates pressing the Enter key with clicking on the Submit button.

# Management Configuration

The NMS main window appears upon login.

**Figure 2-1. NMS Main Window (4929)**

## ▶ Procedure

To configure management parameters:

1. Click on the Management Config (uplink) or System Configuration (DSLAM) button in the top left corner of the window. A floating window appears showing the uplink card's slot number, model type, revision, and MAC addresses, or the Micro DSLAM or Mini DSLAM model type, revision and MAC addresses, as well as several fields for configuration. See Figure 2-2, Management Configuration Window (BSX8000-5).

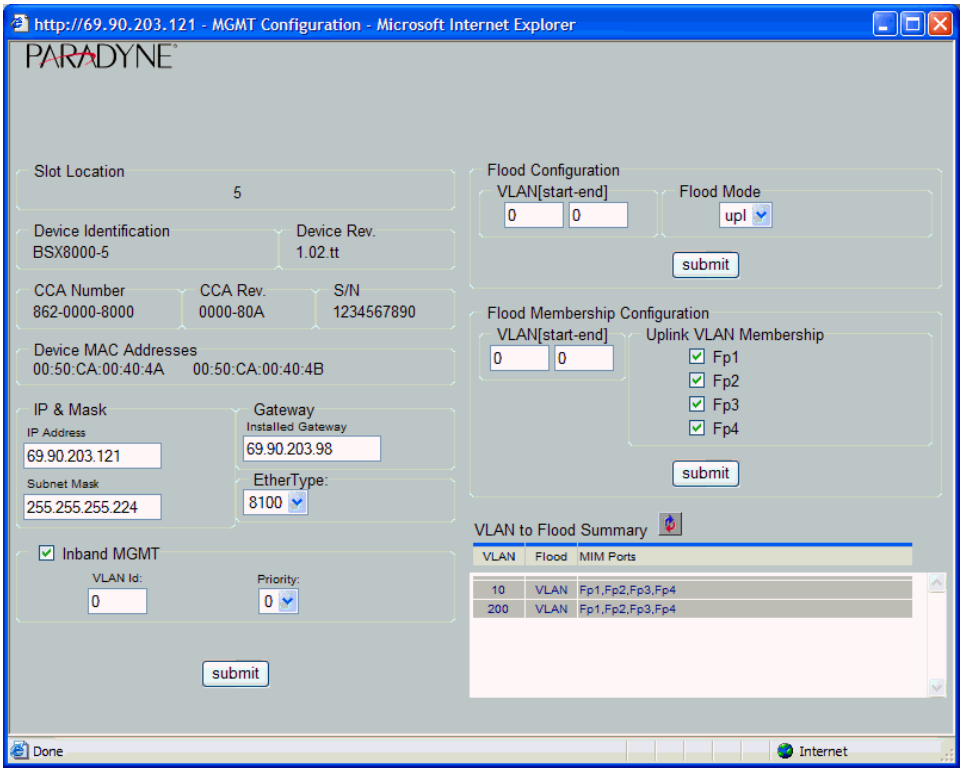



**Figure 2-2. Management Configuration Window (BSX8000-5)**

2. Select or enter the following parameters. Not all fields are available for all devices.

**Table 2-2. Management Configuration Parameters (1 of 2)**

| Parameter | Description |
|---|---|
| IP Address | Specify the management IP address for the DSLAM. |
| Subnet Mask | Specify the subnet mask for the IP address. |
| Gateway | Specify the first-hop gateway address. |
| EtherType | Select the type of packets supported by your router. This is used only for backbone VLAN (Q in Q) traffic. |
| Inband MGMT | Check this box if you will use inband management (that is, you will allow the device to be contacted by ports other than the MGMT port).<br><br>For security purposes, disable inband management when it is not in use. |
| VLAN Id | Specify a VLAN identifier for inband management. |
| Priority | Specify a priority (0–7) for inband management traffic. |

**Table 2-2. Management Configuration Parameters (2 of 2)**

| Parameter | Description |
|---|---|
| Flood Configuration | Flood refers to the method in which interface modules handle unknown unicasts, unknown broadcasts, and unknown multicasts for each port.<br>■ Uplink – Any traffic with VLAN IDs that match a VLAN ID that has been configured to Uplink flood (default) will be allowed to flow from DSL ports to uplinks only (not DSL port to DSL port).<br>■ VLAN – Any traffic with VLAN IDs that match a VLAN ID that has been configured to VLAN flood will be allowed to flow from DSL port to uplinks and DSL port to DSL port. |
| Flood Membership Configuration | Specify the VLAN membership of the uplink ports (four fixed ports and any MIM ports).<br>By default all uplinks are members of all VLANs. However you can change it such that an uplink port is a member of only a certain set of VLAN IDs. In this case any traffic on an uplink port with a VLAN ID that the uplink port is not a member of, will be dropped. |

3. Click on Submit and exit your web browser.

   NMS connectivity will be lost immediately upon clicking the Submit button; you must close your web browser,

   If you have a 12000 BLC with two uplink modules installed (one in slot 13 and one in slot 14), you need to set the system configuration fields for both. Reconfigure the IP Address and Subnet Mask on your PC and then re-launch your web browser.

# Restoring the IP Address and Subnet Mask on Your PC

You must now return the IP address and subnet mask of the NIC in your PC back to the original values. The following instructions are for a Windows XP operating system.

### ▶ Procedure

To return the TCP/IP parameters of your PC back to the original values:

1. In the Windows task bar, click on the Start button, and then click on Control Panel.
2. Double-click on the Network Connections icon.
3. In the LAN or High-Speed Internet window, right-click on the icon corresponding to your network interface card (NIC) and select Properties. (Often this icon is labeled Local Area Connection.) The Local Area Connection dialog box is displayed with a list of currently installed network items.

4. Ensure that the check box to the left of the item labeled Internet Protocol (TCP/IP) is checked, and click on Properties.
5. In the Internet Protocol (TCP/IP) Properties dialog box, depending upon which option was selected prior to entering the default IP Address and Subnet Mask (as described in *Configuring Your PC for NMS* on page 2-1), do one of the following:
   - — Click Obtain an IP Address Automatically

     or
   - — Click Specify an IP Address and then manually enter your local IP Address and Subnet Mask
6. Click on OK twice to confirm your changes, and close the Control Panel.

# Restarting the NMS

You may continue to access the NMS using a direct connection to the device. Alternatively, if you enabled inband management, you can access the NMS via a remote network connection.

### ▶ Procedure

To access the NMS after setting its IP address:

1. Open a web browser. Type the device's new IP Address in the address field at the top of the browser window and press the Enter key.
2. Log in using the default username (**superuser**) and password (**Password**).
3. Make additional configuration changes as desired. For security purposes, it is a good idea to immediately change the default passwords and community names.
4. Save port configurations to a local file. Individual port configurations can be saved locally on your PC as a backup, or for use as a template for future configurations. See *Local Files* in Chapter 1, *NMS Introduction*.
5. When configuration is complete, log out (close the NMS window). If you forget to log out, the NMS will automatically request a password after five minutes of inactivity.

**CAUTION**

**If you leave your workstation without logging out and another user accesses the NMS before your password expires, the new user will have full access to the management system without being required to log in.**

# Navigating the NMS

# 3

## NMS Main Window

The NMS main window consists of two sections: a chassis front view which provides an at-a-glance illustration of module and port status, and an administration panel with buttons and fields for system management. Views vary among the Network Extenders, Micro DSLAMs, Mini DSLAMs, and BLCs.

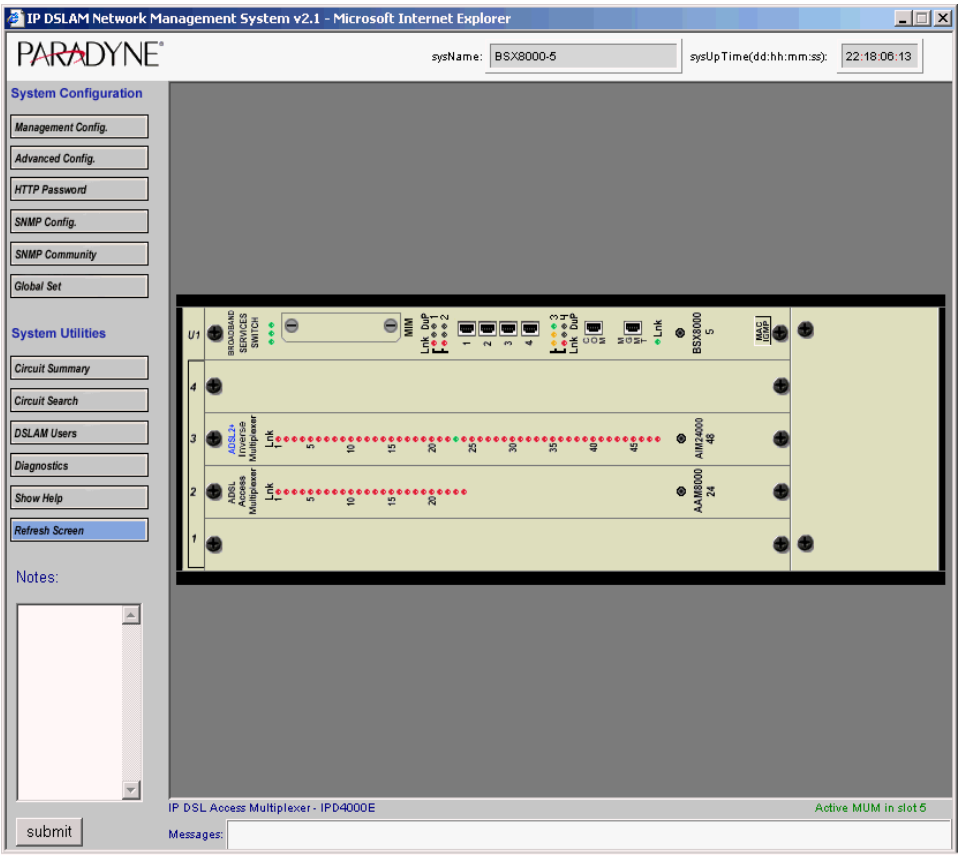



**Figure 3-1. NMS Main Window**

# Network Extender Front View

**Figure 3-2. Micro DSLAM and its Depiction in the NMS**

## System Reset Button

Clicking on the System Reset Button on the left side of the faceplate invokes the Network Extender Reset Window. Click on Yes or No, then click on the Submit Button. A system reset will clear NMS statistical data and restart counter values at zero; it will not clear the configuration.

## Ethernet, T1, and E1 Ports and Corresponding LEDs

Depending on model, Network Extenders support 10/100BaseT Ethernet and T1 or E1 uplink connections.

**Table 3-1. Network Extender Port LEDs**

| Port | LED Color | Indication |
|---|---|---|
| 1–4<br>10/100 | Green | 100 Mbps uplink connection established |
| | Amber | 10 Mbps uplink connection established |
| | Red | No link |
| | Gray | Administratively disabled |
| 1–4 or 1–8<br>T1 or E1 | Green | Connection established |
| | Red | No link |
| | Gray | Administratively disable |

### Sub Button

The Sub button, if present, allows you to select whether the unit is a Provider or Subscriber. Note that the default IP address of the unit changes if the subscriber status changes.

### Communication Port

The COM Port is depicted in the middle of the faceplate and has no corresponding LED. There are no configurable elements for the COM Port; it simply allows for a direct connection with your PC for the purpose of system management via Command Line Interface (CLI). See your Network Extender Installation Instructions and the *CLI User's Guide* for further information.

### Power LED

The Power LED is a solid green LED on the right side of the faceplate.

## Micro DSLAM Chassis Front View

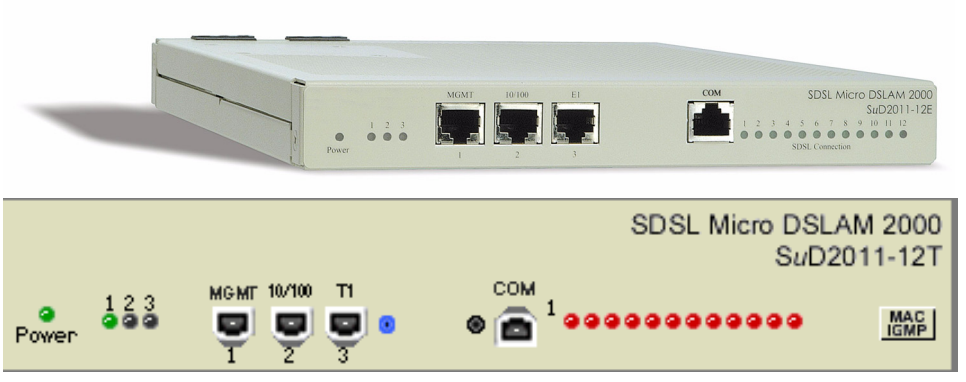



**Figure 3-3. Micro DSLAM and its Depiction in the NMS**

### Power LED

The Power LED is a solid green LED on the left-hand side of the chassis faceplate.

### Management Port and Corresponding LED

On the SμD6011, the Management Port is the first port on the left, labeled MGMT/1. The corresponding LED is LED 1, to the left of the ports.

The COM port of the AμD8000 has no corresponding LED.

**Table 3-2. Micro DSLAM MGMT Port LED**

| Port | LED Color | Indication |
|---|---|---|
| 1 [MGMT] | Green | 100 Mbps management connection established |
| | Amber | 10 Mbps management connection established |
| | Gray | no management connection |

## Uplink Ports and Corresponding LEDs

The Micro DSLAMs support 10/100BaseT Ethernet, T1, and E1 uplink connections. The number and placement of uplink ports depends upon the Micro DSLAM model type. If you have a 10/100BaseT Ethernet uplink port, it will be labeled as 10/100 (Port) 2. T1 or E1 uplink ports are (Ports) 2–4 depending on whether or not you have a 10/100BaseT Ethernet uplink and how many uplink ports your Micro DSLAM model has. The corresponding LEDs are LEDs 2–4, located to the left of the MGMT and uplink ports.

**Table 3-3. Micro DSLAM Uplink Port LEDs**

| Port | LED Color | Indication |
|---|---|---|
| 1–4 (10/100) | Green | 100 Mbps uplink connection established |
| | Amber | 10 Mbps uplink connection established |
| | Red | No link |
| | Gray | Administratively disabled |
| 1–4 or 1–8 (T1) | Green | Uplink connection established |
| | Red | No link |
| | Gray | Administratively disable |
| 1–4 or 1–8 (E1) | Green | Uplink connection established |
| | Red | No link |
| | Gray | Administratively disable |

## System Reset Button

Clicking on the System Reset Button invokes the μDSLAM Reset Window. Click on Yes or No, then click on the Submit Button. A system reset will clear NMS statistical data and restart counter values at zero; it will not clear the configuration.

### Communication Port

The COM Port is depicted in the middle of the chassis faceplate and has no corresponding LED. There are no configurable elements for the COM Port; it simply allows for a direct connection with your PC for the purpose of system management via Command Line Interface (CLI). See your Micro DSLAM Installation Instructions and the *CLI User's Guide* for further information.

### SDSL Connection LEDs

SDSL Connection LEDs are depicted on the right of the chassis faceplate. There are either 6 or 12 SDSL LEDs depending upon the Micro DSLAM model type.

**Table 3-4. Micro DSLAM SDSL Connection LEDs**

| Port | LED Color | Indication |
|---|---|---|
| 1-6 or 1-12 SDSL Connection | Green | SDSL connection established |
| | Red | Non-functional SDSL connection |
| | Gray | No SDSL connection |

## Mini DSLAM Chassis Front View

**Figure 3-4. Mini DSLAM**

### Power LED

The Power LED is a solid green LED on the left-hand side of the chassis faceplate.

### Fan LED

The Fan LED is on the left side of the chassis faceplate and denotes the status of the four fans inside the Mini DSLAM.

**Table 3-5. Mini DSLAM Fan LED**

| LED | Color | Indication |
|---|---|---|
| Fan | Green | All fans are functioning |
| | Amber | At least one fan has failed |
| | Red | All four fans have failed |

## Management Port

The Management (MGMT) Port is depicted on the left side of the chassis faceplate and has no corresponding LED.

## Uplink Interface Modules and Corresponding LEDs

Mini DSLAMs support 10/100 Ethernet, T1, E1, DS3 and E3 Uplink Interface Modules (UIMs). The slot on the left is UIM Port 1 and the slot on the right is UIM Port 2. Only one UIM is required for operational purposes; a second UIM may be installed for redundancy.

**Table 3-6. Mini DSLAM UIM LEDs**

| UIM | LED Color | Indication |
|---|---|---|
| 10/100 Ethernet | Green | Uplink connection is established |
| | Red | No link |
| | Gray | Administratively disabled |
| T1/E1 | Green | Uplink connection is established |
| | Red | No link |
| | Gray | Administratively disabled |
| DS3/E3 | Green | Uplink connection is established |
| | Red | No link |
| | Gray | Administratively disabled |

## SDSL RJ21 Cable Connector and Corresponding Port LEDs

The SDSL RJ21 cable connector is depicted on the far right of the chassis faceplate. To the left of the connector are the corresponding SDSL port LEDs: twelve or twenty-four, depending upon the Mini DSLAM model type being installed.

**Table 3-7. Mini DSLAM SDSL Port LEDs**

| Port | LED Color | Indication |
|---|---|---|
| 1–12 or 1–24 SDSL Connection | Green | SDSL connection established |
| | Red | no SDSL connection |
| | Gray | no SDSL connection |

# IP DSLAM Chassis Front View

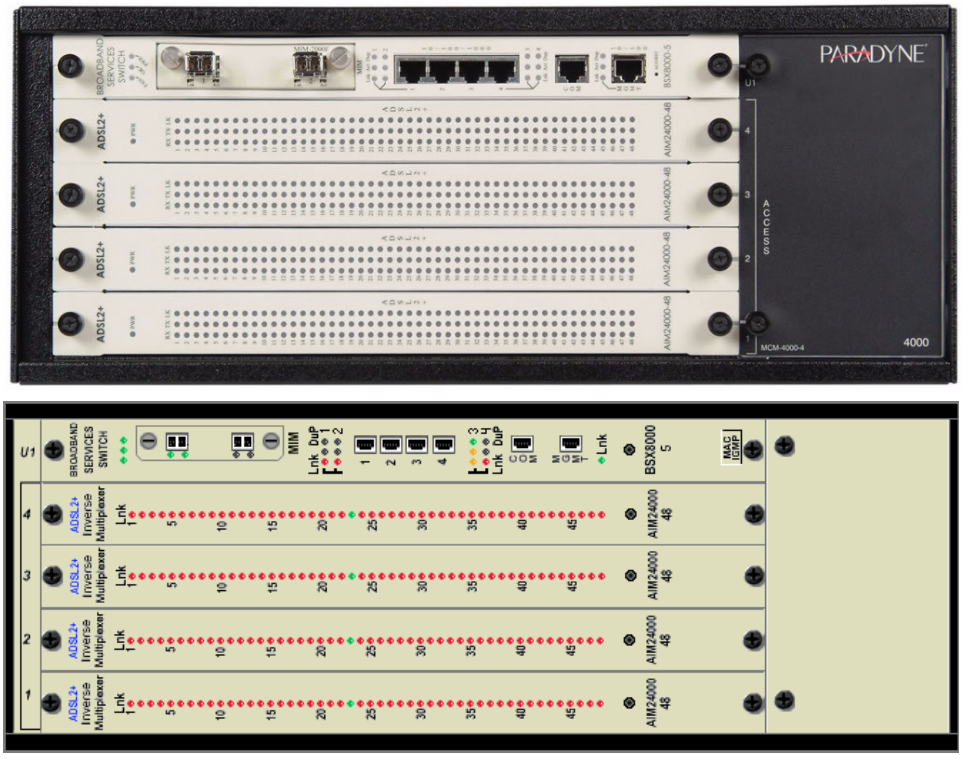



**Figure 3-5. 4000 BLC and its Depiction in the NMS**

Model 12000 BLCs have 14 slots (numbered left to right); slots 1–12 house interface modules and slots 13–14 house Broadband Switches (BSXs) or Multiplexer Uplink Modules (MUMs). Model 4000 BLCs have 5 slots (numbered from bottom to top); slots 1–4 house interface modules and slot 5 houses a BSX or a MUM.

## Uplink Modules and Corresponding LEDs

Only one uplink module (a BSX or MUM) is required for operational purposes, although a second uplink module may be installed for redundancy in a 12000 BLC. Uplink modules have two LEDs shown at the top (left in the 4000 BLC) of the module: the Fan LED is on the left (bottom) and the Power LED is on the right (top). On the BSX, there is an OK LED between the other two.

**Table 3-8. Uplink Module LEDs (1 of 2)**

| LED | Color | Indication |
|---|---|---|
| FAN | Green | All four fans are functioning |
| | Amber | At least one fan has failed |
| | Red | All fans have failed |

**Table 3-8. Uplink Module LEDs (2 of 2)**

| LED | Color | Indication |
|---|---|---|
| OK | Green | (BSX8000-5 only.) The uplink module is functional. |
| POWER | Green | Chassis is powered |

## Uplink Interface Modules and Corresponding LEDs

MUMs support 10/100BaseT, T1, E1, DS3, and E3 Uplink Interface Modules (UIMs). The top slot (left slot for the 4000 BLC) in a MUM faceplate is UIM Port 1 and the bottom (right) slot is UIM Port 2. Only one UIM is required in a MUM for operational purposes, although a second UIM may be installed for redundancy.

**Table 3-9. UIM LEDs**

| UIM | LED Color | Indication |
|---|---|---|
| 10/100 Ethernet | Green | Uplink connection is established |
| | Red | No link |
| | Gray | Administratively disabled |
| T1/E1 | Green | Uplink connection is established |
| | Red | No link |
| | Gray | Administratively disabled |
| DS3/E3 | Green | Uplink connection is established |
| | Red | No link |
| | Gray | Administratively disabled |

## Interface Modules and Corresponding LEDs

Models 4000 and 12000 BLCs support IDSL, SDSL, ADSL, T1, and E1 interface modules. Any interface module may be installed in any slot 1–12 on the 12000 BLC or 1–4 on the 4000 BLC.

**Table 3-10. 4000 and 12000 BLC Interface Module LEDs**

| Port | LED | Indication |
|---|---|---|
| DSL | Green | DSL connection established |
| | Red | No link |
| | Gray | Administratively disabled |
| T1/E1 | Green | T1/E1 connection established |
| | Red | No link |
| | Gray | Administratively disabled |

# System Configuration Screens

# 4

## Overview

System Configuration screens include:

- Management Configuration – Used to set the unit's IP address. See *Management Configuration* on page 4-2.
- Advanced Configuration – Used to set the system name and communication restrictions. See *Advanced Configuration* on page 4-3.
- HTTP Password – Used to set new passwords. See *HTTP Password* on page 4-4.
- SNMP Configuration – Used to specify SNMP trap notification addresses and enable traps. See *SNMP Configuration* on page 4-5.
- SNMP Community – Used to set community names. See *SNMP Community Administration* on page 4-6.
- Global Set – Used to set global parameters for traffic management. See *Global Set* on page 4-7.

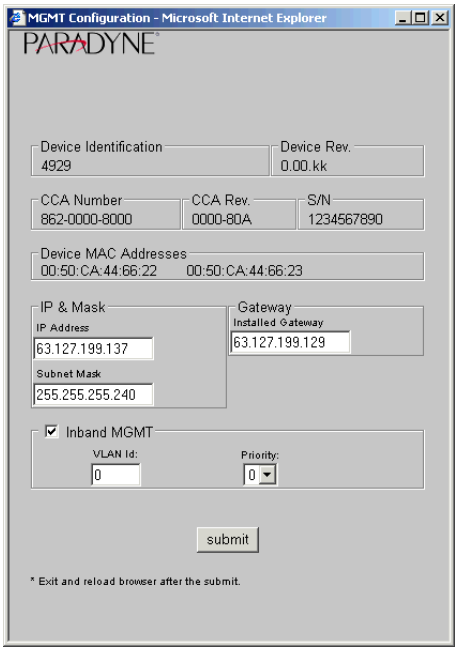
# Management Configuration

Use the Management Configuration screen to set the unit's IP address and other management parameters.

## ▶ Procedure

To configure management parameters:

1. From the home screen, click on the Management Config button. The Management Configuration screen appears.




2. Select or enter the following parameters:

| Parameter | Description |
|---|---|
| IP Address | Specify the management IP address for the DSLAM. |
| Subnet Mask | Specify the subnet mask for the IP address. |
| Gateway | Specify the first-hop gateway address. |
| Inband MGMT | Check this box if you will use inband management through MIM ports or ADSL ports. |
| VLAN Id | Specify the VLAN to use for inband management. |
| Priority | Specify the 802.1p priority (0–7) to be applied to the VLAN. |

3. Click on Submit.

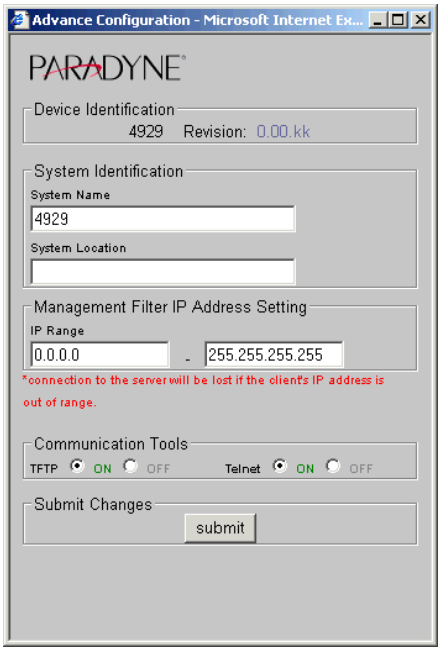
# Advanced Configuration

Use the Advanced Configuration screen to set the unit's system name and other parameters.

## ▶ Procedure

To configure advanced system parameters:

1. From the home screen, click on the Advanced Config button. The Advanced Configuration screen appears.




2. Select or enter the following parameters:

| Parameter | Description |
|---|---|
| System Name | Specify a name to identify the DSLAM. |
| System Location | Specify location information to further identify the DSLAM. |
| IP Range | Specify a range of IP addresses from which management traffic is accepted. If your PC's IP address is outside the range, contact with the DSLAM will be lost when you click on Submit. |
| Communication Tools | Click in the On or Off buttons to enable or disable TFTP and Telnet on this DSLAM. |

3. Click on Submit.

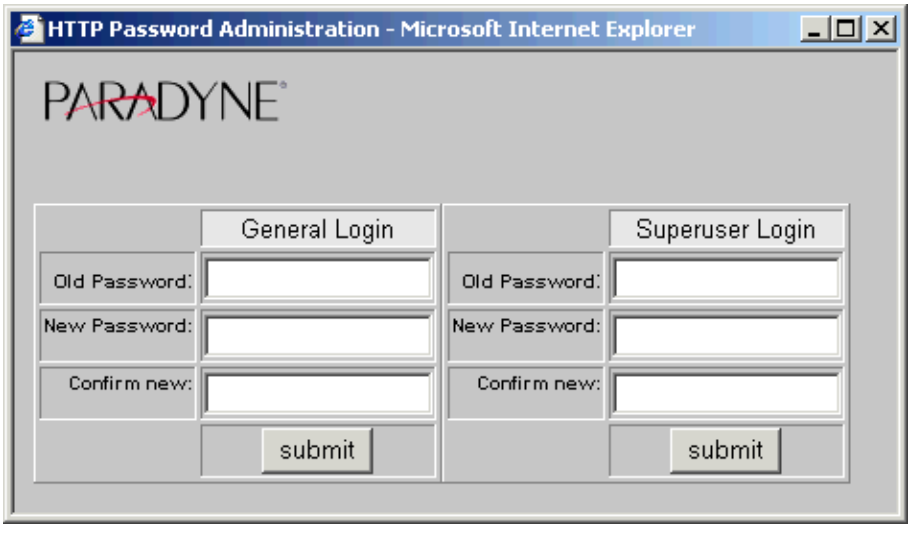
# HTTP Password

Use the HTTP Password screen to set the password for the General and Superuser logins.

## ▶ Procedure

To configure HTTP passwords:

1. From the home screen, click on the HTTP Password button. The HTTP Password Administration screen appears.




2. Select or enter the following parameters:

| Parameter | Description |
|---|---|
| Old Password | Specify the current password for the General or Superuser login. The default setting is **Password**. |
| New Password | Specify the new password for the General or Superuser login. |
| Confirm New | Type the new password again. |

3. Click on Submit.

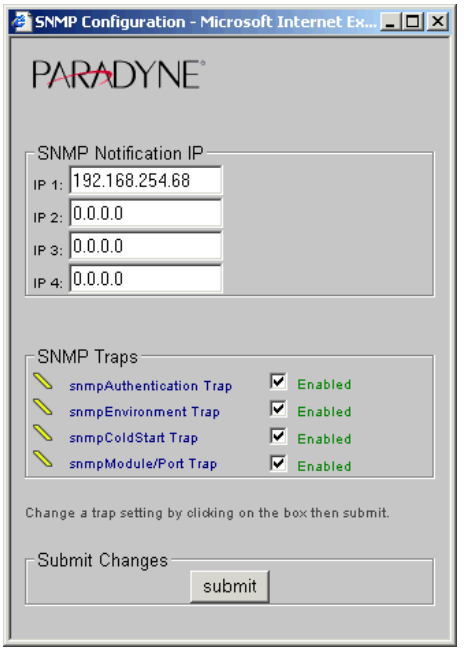
# SNMP Configuration

Use the SNMP Configuration screen to enable traps and establish trap managers..

## ▶ Procedure

To configure SNMP parameters:

1. From the home screen, click on the SNMP Config button. The SNMP Configuration screen appears.




2. Select or enter the following parameters:

| Parameter | Description |
|---|---|
| SNMP Notification IP | Specify the IP addresses of hosts that are to receive trap notifications. |
| SNMP Traps | Click in the check boxes to enable or disable SNMP traps:<br>■ snmpAuthentication<br>■ snmpEnvironment<br>■ snmpColdStart<br>■ snmpModule/Port |

3. Click on Submit.

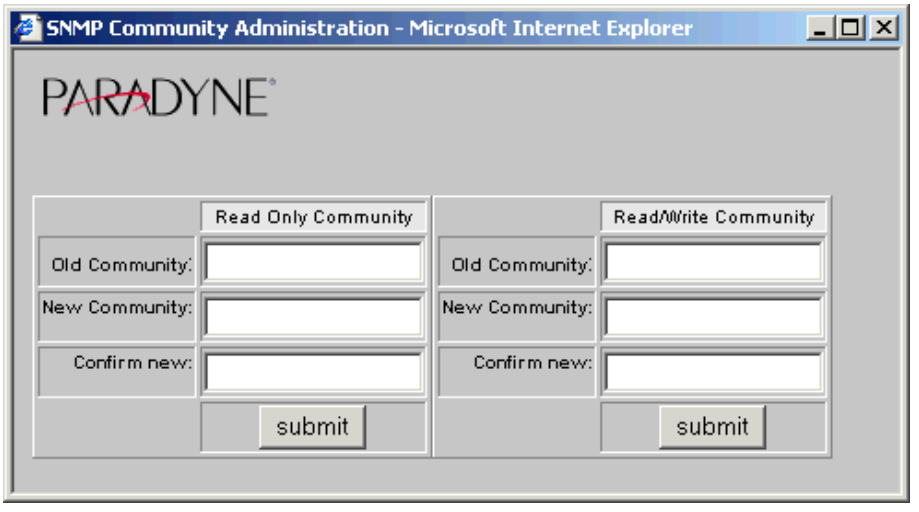
# SNMP Community Administration

Use the SNMP Community Administration screen to set the read and read/write community names.

## ▶ Procedure

To configure community names:

1. From the home screen, click on the SNMP Community button. The SNMP Community Administration screen appears.




2. Select or enter the following parameters:

| Parameter | Description |
|---|---|
| Old Community | Specify the current community name for Read or Read/Write operations. The default for both is **Password**. |
| New Community | Specify the new community name for Read or Read/Write operations. |
| Confirm New | Type the new community name again. |

3. Click on Submit.

# Global Set

Use the Global Set screen to set parameters for all ports or for a group of ports at once. Available Global Set parameters are device-dependent; Table 4-1, Global Set Screens by Device, compares some devices:

**Table 4-1. Global Set Screens by Device**

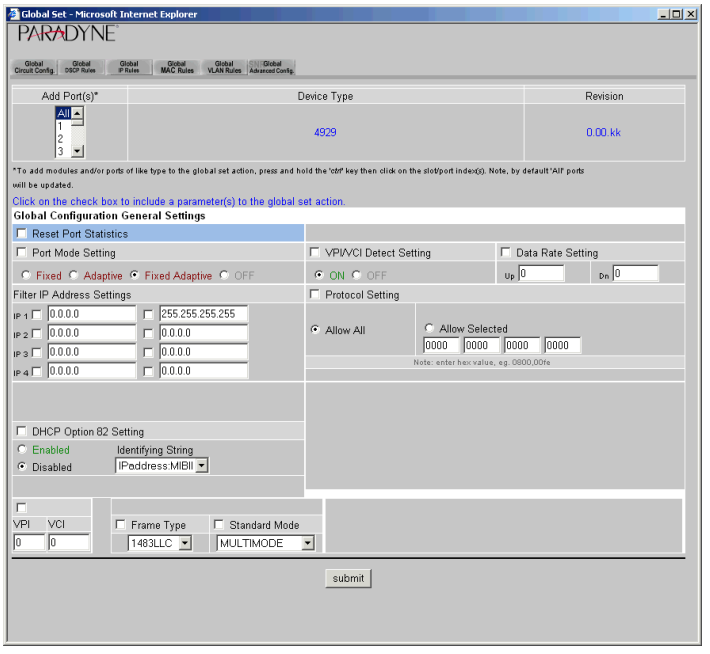
| Global Set Screen: | Network Extender | Micro DSLAM | AIM24000 Line Card | 4929 DSLAM |
|---|---|---|---|---|
| Circuit Config – See *Global Circuit Configuration for T1 or E1 Ports* on page 4-11 | | | X | X |
| Circuit Config – See *Global Circuit Configuration for T1 or E1 Ports* on page 4-11 | X | | | |
| DSCP Rules – See *Global DSCP Rules* on page 4-14 | X | | X | X |
| IP Rules – See *Global IP Rules* on page 4-16 | X | | X | X |
| Layer 2 Set – See *Global Layer 2 Set (Micro DSLAMs and Mini DSLAMs)* on page 4-18 | | X | | |
| MAC Rules – See *Global MAC Rules* on page 4-20 | X | | X | X |
| Port Set – See *Global Port Set (Micro DSLAMs and Mini DSLAMs)* on page 4-22 | | X | | |
| SNR Settings – See *Global Advanced Configuration* on page 4-23 | X | | X | X |
| VLAN Rules – See *Global VLAN Rules* on page 4-24 | X | | X | X |

## Global Circuit Configuration for DSL Ports

### ▶ Procedure

To configure global parameters for DSL ports:

1. From the home screen, click on the Global Set button. The Global Circuit Configuration screen appears.




2. In the Add Ports drop-down list, select All or a group of ports. To select multiple ports, hold the Ctrl key while clicking on your selections.
3. Select or enter the following parameters:

| Parameter | Description |
|---|---|
| Reset Port Statistics | Click in this box to reset statistics when the Submit button is clicked on. |
| Port Mode Setting | Specify a port mode:<br>■ Fixed – The upstream and downstream rates are fixed at the rates in the Data Rate Setting fields.<br>■ Adaptive – The ports will automatically train up to the best possible speed.<br>■ Fixed Adaptive – The ports will automatically train up to the best possible speed, up to a user-specified maximum upstream and downstream bandwidth. |

| Parameter | Description |
|---|---|
| VPI/VCI Detect Setting | Specify the port behavior with regard to VPI/VCI detection:<br>■ On – The DSLAM will monitor the line to determine the VPI and VCI settings of the remote ADSL modem and set itself accordingly. If no ATM cells are detected (at any VPI/VCI setting), the port will default to VPI 0 and VCI 35.<br>■ Off – The port will use the default setting of VPI and VCI (0/35 if not changed by the setting of VPI and VCI, below), or lock in the VPI/VCI already discovered while VPI/VCI detection was On. |
| Data Rate Setting | If you have selected a Port Mode of Fixed or Fixed Adaptive, specify the maximum upstream and downstream rates, in bps. |
| Filter IP Address Settings | Specify up to four IP address ranges. Packets are accepted only from source IP addresses in the ranges specified. |
| Protocol Setting | Click in the check box to enable Protocol Setting detection. Select Allow Selected and specify up to four Ethertypes allowed on the ports. |
| DHCP Option 82 | Specify whether DHCP Option 82 is enabled, and if it is, whether packets are identified by IP address or circuit ID. This identifier is added to packets to let your DHCP Server recognize which DSLAM port an IP address request is coming from, thereby allowing the DHCP Server to limit the number of IP addresses assigned per port. |
| VPI and VCI | Specify the VPI and VCI used if VPI/VCI Detect Setting (above) is Off. |
| Frame Type | Specify whether the ports use Logical Link Control (LLC) or Virtual Channel Multiplexing (VCM) bridged encapsulation. These are defined in RFC 1483. |
| Standard Mode (ADSL) | Specify the ports' line code:<br>■ MULTIMODE – Each port uses the line code of its partner modem (default)<br>■ T1_413 – DMT modulation as defined in ANSI T1.413<br>■ G_Lite – G.992.2 (G.lite) modulation<br>■ G_DMT – G.992.1 (G.dmt) modulation<br>■ ALCTL – Alcatel modulation<br>■ G_DMT_BIS – G.992.3 (ADSL2) modulation<br>■ G_DMT_BISplus – G.992.5 (ADSL2+) modulation<br>■ READSL2 – Reach Expanded ADSL2 (G.992.3 in Annex L format) |

| Parameter | Description |
|---|---|
| Line Code (SHDSL | Specify the ports' line code:<br>CAP – Carrierless Amplitude and Phase modulation<br>2B1Q – Two Binary, one quaternary<br>G.SHDSL – G.991.2 |

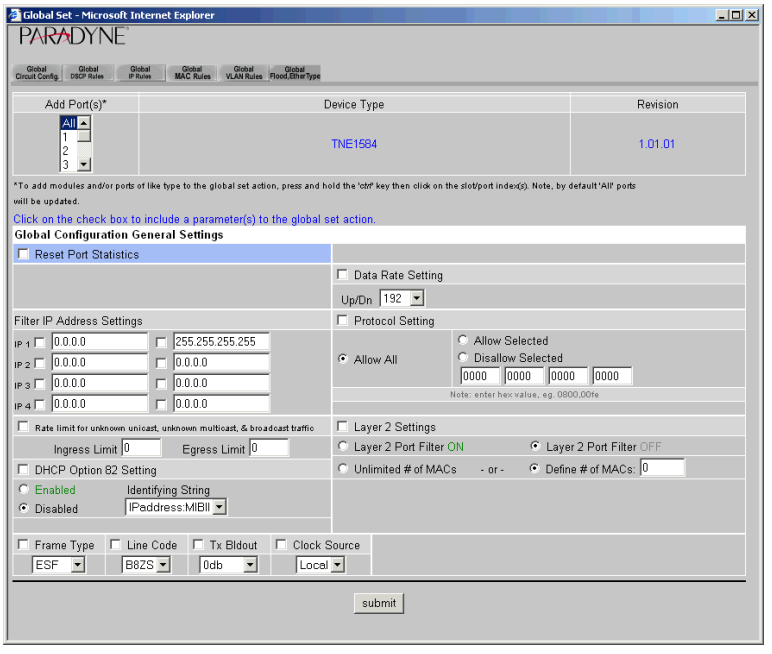
4. Click on Submit.

## Global Circuit Configuration for T1 or E1 Ports

### ▶ Procedure

To configure global parameters for T1 or E1 ports:

1. From the home screen, click on the Global Set button. The Global Circuit Configuration screen appears.




2. In the Add Ports drop-down list, select All or a group of ports. To select multiple ports, hold the Ctrl key while clicking on your selections.
3. Select or enter the following parameters:

| Parameter | Description |
|---|---|
| Reset Port Statistics | Click in this box to reset statistics when the Submit button is clicked on. |
| Data Rate Setting | Specify the maximum upstream and downstream rate, in kbps. |
| Filter IP Address Settings | Specify up to four IP address ranges. Packets are accepted only from source IP addresses in the ranges specified. |
| Protocol Setting | Click in the check box to enable Protocol Setting detection. Select Allow Selected and specify up to four Ethertypes allowed on the ports. |
| Rate Limit | Specify the Ingress Limit and Egress Limit for unknown unicast traffic, unknown multicast traffic, and broadcast traffic, in kbps. Zero denotes no limit. |

| Parameter | Description |
|---|---|
| Layer 2 Port Filter | Specify whether Layer 2 port filtering is enabled or disabled. |
| # of MACs | Specify whether an unlimited number of MAC addresses, or a specified limit number of MAC addresses, is allowed to access the ports. Specify the MAC addresses in MAC 1 through MAC 3. |
| DHCP Option 82 | Specify whether DHCP Option 82 is enabled, and if it is, whether packets are identified by IP address or circuit ID. This identifier is added to packets to let your DHCP Server recognize which DSLAM port an IP address request is coming from, thereby allowing the DHCP Server to limit the number of IP addresses assigned per port. |
| Frame Type | Specify the ports' frame type. |
| Line Code | Specify the ports' line code. |
| Tx Bldout | Specify the transmission line buildout. |
| Clock Source | Specify whether the ports receive their clocking from the loop. |

4. Click on Submit.

## Allow Tag or Untag on Ingress Packet Parameter

The global and single Rules screens include a parameter labeled Allow Tag/Untag on Ingress Pkt. When the *tag* option is selected, the port acts as an 802.1Q VLAN trunk port; otherwise the port acts as an 802.1Q VLAN access port.

The parameter has the effects shown in Table 4-2, Effects of Allow Tag or Untag on Ingress Packet Parameter.

**Table 4-2. Effects of Allow Tag or Untag on Ingress Packet Parameter**

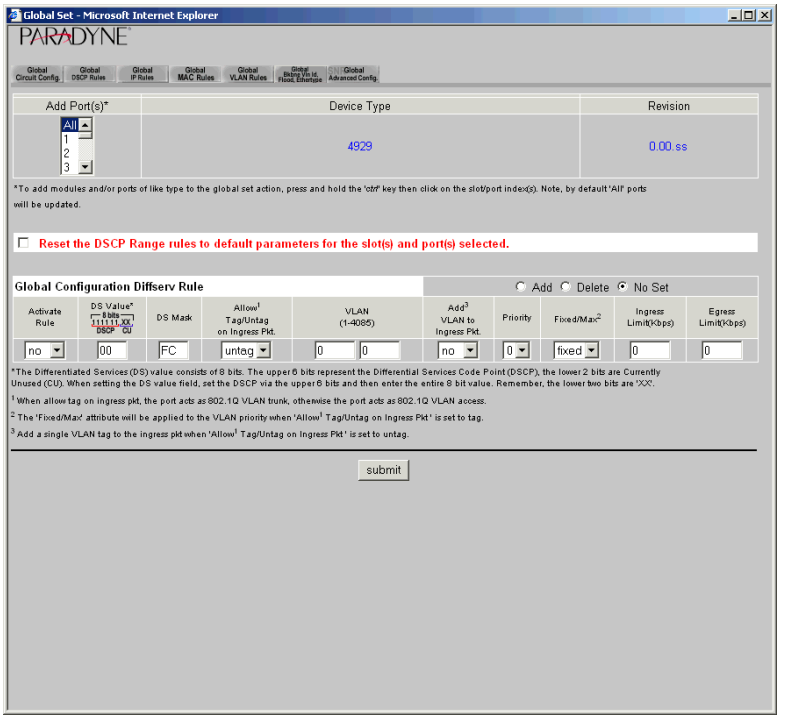
| Port Type | Behavior |
|---|---|
| VLAN Access Port | ■ Allow untagged frames on the upstream DSL ingress and tag it with the specified 802.1q VLAN and 802.1p priority<br>■ Allow tagged frames with tags matching the specified 802.1q VLAN on the downstream and strip the tag before sending it to DSL egress<br>If no configuration is explicitly defined to allow tagged traffic on DSL ingress, then tagged traffic on DSL ingress will be dropped. |
| VLAN Trunk Port | ■ Allow tagged frames with tags matching the specified 802.1q VLAN on the upstream DSL ingress<br>■ Allow tagged frames with tags matching the specified 802.1q VLAN on the downstream DSL egress<br>Any tagged frames with tags not matching the specified 802.1q VLAN(s) or VLAN range(s) for the port will be dropped.<br>If no configuration is explicitly defined to allow untagged traffic on DSL ingress, untagged traffic will also be dropped. |
| VLAN Trunk Port with PVID (or native VLAN) | ■ Allow tagged frames with tags matching the specified 802.1q VLAN on the upstream DSL ingress<br>■ Allow tagged frames with tags matching the specified 802.1q VLAN on the downstream DSL egress<br>■ Allow untagged frames on the upstream DSL ingress and tag it with the specified 802.1q VLAN and 802.1p priority<br>■ Allow tagged frames with tags matching the specified untag policy 802.1q VLAN on the downstream and strip the tag before sending it to DSL egress<br>Any tagged frames with tags not matching the specified 802.1q VLAN(s) or VLAN range(s) for the port will be dropped. |

## Global DSCP Rules

### ▶ Procedure

To configure DSCP rules:

1. Click on the Global DSCP Rules tab. The Global DSCP Rules screen appears.


Global Set - Microsoft Internet Explorer
PARADYNE
Add Port(s)*
Device Type
Revision
All
1
2
3
4929
0.00.ss
*To add modules and/or ports of like type to the global set action, press and hold the 'ctrl' key then click on the slot/port index(s). Note, by default 'All' ports will be updated.
Reset the DSCP Range rules to default parameters for the slot(s) and port(s) selected.
Global Configuration Diffserv Rule
Add
Delete
No Set
Activate Rule
DS Value*
DS Mask
Allow[1] Tag/Untag on Ingress Pkt.
VLAN (1-4085)
Add[3] VLAN to Ingress Pkt.
Priority
Fixed/Max[2]
Ingress Limit(Kbps)
Egress Limit(Kbps)
no
00
FC
untag
0
0
no
0
fixed
0
0
*The Differentiated Services (DS) value consists of 8 bits. The upper 6 bits represent the Differential Services Code Point (DSCP), the lower 2 bits are Currently Unused (CU). When setting the DS value field, set the DSCP via the upper 6 bits and then enter the entire 8 bit value. Remember, the lower two bits are 'XX'.
[1] When allow tag on ingress pkt, the port acts as 802.1Q VLAN trunk, otherwise the port acts as 802.1Q VLAN access.
[2] The 'Fixed/Max' attribute will be applied to the VLAN priority when 'Allow[1] Tag/Untag on Ingress Pkt.' is set to tag.
[3] Add a single VLAN tag to the ingress pkt when 'Allow[1] Tag/Untag on Ingress Pkt.' is set to untag.
submit

2. In the Add Ports drop-down list, select All or a group of ports. To select multiple ports, hold the Ctrl key while clicking on your selections.
3. Select or enter the following parameters:

| Parameter | Description |
|---|---|
| Reset the DSCP Range rules to default parameters | Click in this box to reset DSCP Range rules when the Submit button is clicked on. |
| Global Configuration Diffserv Rule | Specify Add, Delete, or No Set to add a rule, delete a rule, or perform no action when the Submit button is clicked on. |
| Activate | Specify whether the rule you are adding is enabled. |
| DS Value | Specify the Differentiated Services value. The DS Value of a packet is a hexadecimal value calculated from the upper six bits of an eight-bit field in the packet's IP header. |

| Parameter | Description |
|---|---|
| DS Mask | Specify the DS mask. The DS Mask is a hexadecimal value that indicates which of the DSCP's upper six bits will be utilized in considering a packet's DSCP type. Default is FC, indicating that all of the DSCP's upper six bits will be used in calculating the packet's DS Value. |
| Allow Tag/Untag on Ingress Pkt. | Specify tag or untag. Tag indicates that ingress packets already matched to the Diffserv Rule must have a VLAN tag to be further considered; packets without a VLAN tag will be dropped. See *Allow Tag or Untag on Ingress Packet Parameter* on page 4-13. |
| VLAN | Specify a VLAN ID range. For each Global Diffserv Rule, if you selected Tag for Allow Tag/Untag, the VLAN field should specify either an acceptable single VLAN, or an acceptable VLAN Range, for VLAN tags on ingress packets. If you selected Untag, the VLAN field should specify a single VLAN only if you intend to have a VLAN tag added to packets; if you do not intend to have a VLAN tag added to packets, the VLAN field should be left at the 0 - 0 default. |
| Tag Action on DSL Ingress Pkt. | Specify the action to take with DSL ingress packets:<br>■ Add tag<br>■ Keep tag<br>■ Replace tag<br>■ Drop packet<br>■ No action |
| Priority | Specify the priority to be used when adding a configured VLAN ID to a packet. |
| Fixed/Max | Specify the handling of VLAN priority (used only if the received packet is already tagged):<br>■ Fixed – The packet's original priority will automatically be replaced with the Priority specified above,<br>■ Max – The packet's original priority will be replaced with the configured Priority only if the packet's original priority is greater than the configured Priority. |
| Ingress Limit | Specify the ingress limit in kbps for packets matching this rule. |
| Egress Limit | Specify the egress limit in kbps for packets matching this rule. |

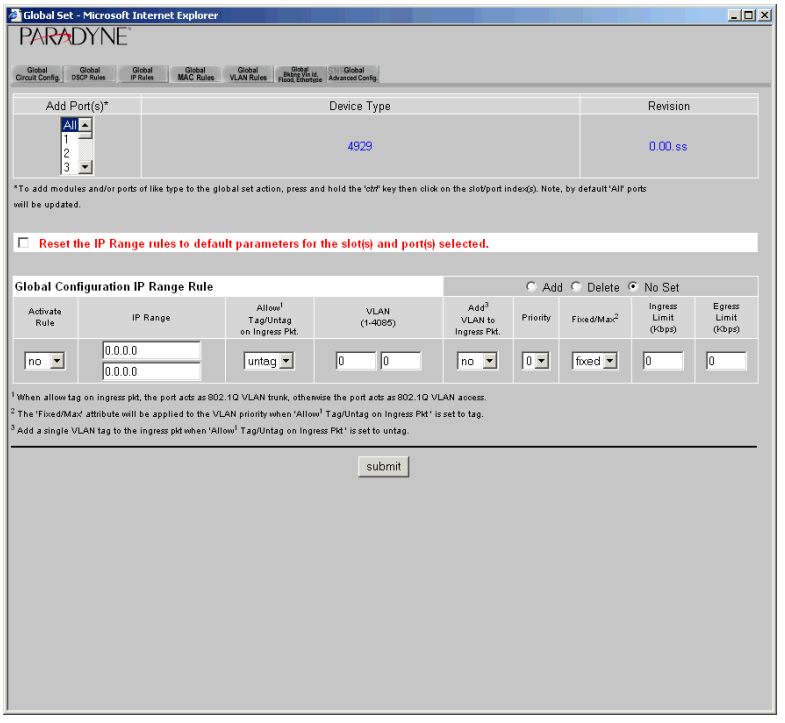
4. Click on Submit.

## Global IP Rules

### ▶ Procedure

To configure IP rules:

1. Click on the Global IP Rules tab. The Global IP Rules screen appears.


Global Set - Microsoft Internet Explorer
PARADYNE
Add Port(s)*
Device Type
Revision
All
1
2
3
4929
0.00.ss
*To add modules and/or ports of like type to the global set action, press and hold the 'ctrl' key then click on the slot/port index(s). Note, by default 'All' ports will be updated.
Reset the IP Range rules to default parameters for the slot(s) and port(s) selected.
Global Configuration IP Range Rule
Add
Delete
No Set
Activate Rule
IP Range
Allow[1] Tag/Untag on Ingress Pkt.
VLAN (1-4085)
Add[3] VLAN to Ingress Pkt.
Priority
Fixed/Max[2]
Ingress Limit (Kbps)
Egress Limit (Kbps)
no
0.0.0.0
0.0.0.0
untag
0
0
no
0
fixed
0
0
[1] When allow tag on ingress pkt, the port acts as 802.1Q VLAN trunk, otherwise the port acts as 802.1Q VLAN access.
[2] The 'Fixed/Max' attribute will be applied to the VLAN priority when 'Allow[1] Tag/Untag on Ingress Pkt' is set to tag.
[3] Add a single VLAN tag to the ingress pkt when 'Allow[1] Tag/Untag on Ingress Pkt' is set to untag.
submit

2. In the Add Ports drop-down list, select All or a group of ports. To select multiple ports, hold the Ctrl key while clicking on your selections.
3. Select or enter the following parameters:

| Parameter | Description |
|---|---|
| Reset the IP Range rules to default parameters | Click in this box to reset IP Range rules when the Submit button is clicked on. |
| Global Configuration IP Range Rule | Specify Add, Delete, or No Set to add a rule, delete a rule, or perform no action when the Submit button is clicked on. |
| Activate | Specify whether the rule you are adding is enabled. |
| IP Range | Specify the range of IP addresses that constitutes a match for this rule. |
| Allow Tag/Untag on Ingress Pkt. | Specify tag or untag. Tag indicates that ingress packets already matched to the IP Rule must have a VLAN tag to be further considered; packets without a VLAN tag will be dropped. See *Allow Tag or Untag on Ingress Packet Parameter* on page 4-13. |

| Parameter | Description |
|---|---|
| VLAN | Specify a VLAN ID range. For each Global IP Range Rule, if you selected Tag for Allow Tag/Untag, the VLAN field should specify either an acceptable single VLAN, or an acceptable VLAN Range, for VLAN tags on ingress packets. If you selected Untag, the VLAN field should specify a single VLAN only if you intend to have a VLAN tag added to packets; if you do not intend to have a VLAN tag added to packets, the VLAN field should be left at the 0 - 0 default. |
| Add VLAN to Ingress Pkt. | Specify whether the VLAN ID should be added to ingress packets. |
| Priority | Specify the priority to be used when adding a configured VLAN ID to a packet. |
| Fixed/Max | Specify the handling of VLAN priority (used only if the received packet is already tagged):<br>■ Fixed – The packet's original priority will automatically be replaced with the Priority specified above,<br>■ Max – The packet's original priority will be replaced with the configured Priority only if the packet's original priority is greater than the configured Priority. |
| Ingress Limit | Specify the ingress limit in kbps for packets matching this rule. |
| Egress Limit | Specify the egress limit in kbps for packets matching this rule. |

4. Click on Submit.

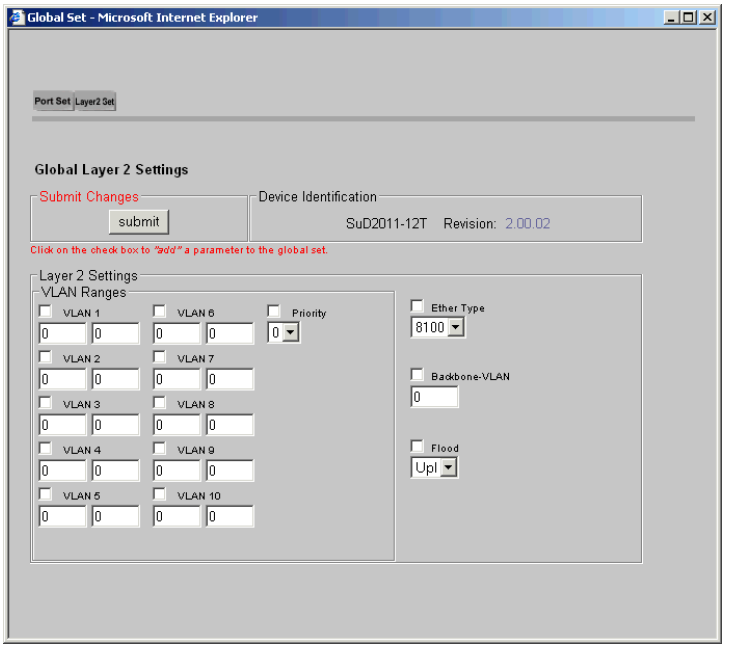
## Global Layer 2 Set (Micro DSLAMs and Mini DSLAMs)

On Micro DSLAMs and Mini DSLAMs, the Global Layer 2 tab is used to set VLAN ranges and other Layer 2 parameters.

### ▶ Procedure

To configure global Layer 2 parameters:

1. Click on the Layer 2 Set button. The Layer 2 Settings screen appears.




2. Select or enter the following parameters:

| Parameter | Description |
|---|---|
| VLAN Ranges | Specify up to 10 VLAN ranges from 1 to 4095. A port set with one or more specified VLAN ranges will automatically be designated as an 802.1Q VLAN Trunk Port; only packets tagged within the specified VLAN range(s) will be allowed to communicate across that port. |
| Priority | In compliance with the IEEE 802.1p Standard (a subset of 802.1Q), each port can be set with one of eight levels of prioritization designated numerically from 0 to 7: 0 (the default) denotes no priority and 7 denotes the highest priority. The priority designation is added to Access Port VLAN tags or replaces the priority designation in Trunk Port VLAN tags. |
| Ethertype | Backbone Ethertype is a two-byte code indicating packet type. Use the drop-down menu to select the Ethertype accepted by your router: 8100 (the default) or 9100. |

| Parameter | Description |
|---|---|
| Backbone VLAN | Specify a Backbone VLAN from 0 to 4095. 0 (the default) disables the feature. Also known as QinQ and stacked VLANs, Backbone VLAN is used in conjunction with standard VLAN tags. The single Backbone-VLAN tag will become the primary identifier, allowing a router with backbone capabilities to make smarter decisions in directing unlearned traffic. This helps prevent traffic from being flooded to incorrect networks. Once packets have been directed to the correct network by the Backbone-VLAN tag, standard VLAN tags will then direct the packets to the appropriate ports. Default is zero, meaning the port is not configured to utilize the Backbone-VLAN function.<br><br>Note: A Backbone-VLAN tag cannot be used independently; standard VLAN tags must be set. Additionally, the DSLAM uplink connection must run through a router in order for a Backbone-VLAN tag to function. |
| Flood | Flood refers to the method in which interface modules handle unknown unicasts (traffic directed to a single MAC Address), broadcasts (traffic directed to all MAC Addresses), and multicasts (traffic directed to multiple MAC Addresses) for each port. Select from the drop-down list:<br><br>■ **Upl (Uplink - Default) –** Unknown unicast, broadcast and multicast traffic is flooded only to the Micro DSLAM, Mini DSLAM, or IP DSLAM uplink interface ports. This prevents communication between interface ports without the intervention of an upstream device such as a router. If communication between interface ports is desired, the upstream device must be properly configured to allow it.<br><br>■ **Vln (VLAN) –** Unknown unicast, broadcast and multicast traffic is flooded to the Micro DSLAM, Mini DSLAM or IP DSLAM access ports (within the sender's VLAN range) in addition to the uplink interface ports. |

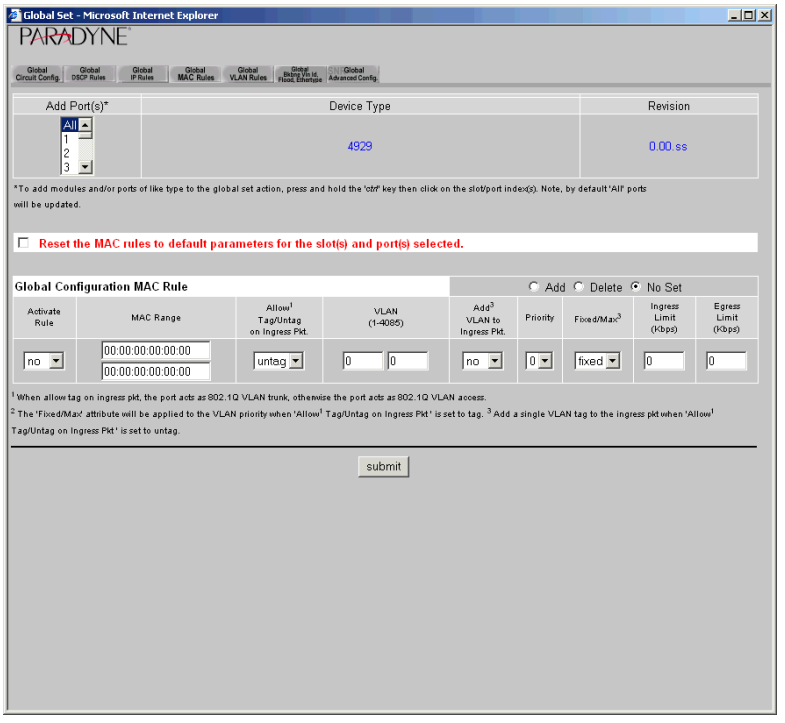
3. Click on Submit.

## Global MAC Rules

### ▶ Procedure

To configure MAC rules:

1. Click on the Global MAC Rules tab. The Global MAC Rules screen appears.


Global Set - Microsoft Internet Explorer
PARADYNE
Add Port(s)*
Device Type
Revision
All
1
2
3
4929
0.00.ss
*To add modules and/or ports of like type to the global set action, press and hold the 'ctrl' key then click on the slot/port index(s). Note, by default 'All' ports will be updated.
Reset the MAC rules to default parameters for the slot(s) and port(s) selected.
Global Configuration MAC Rule
Add
Delete
No Set
Activate Rule
MAC Range
Allow[1] Tag/Untag on Ingress Pkt.
VLAN (1-4085)
Add[3] VLAN to Ingress Pkt.
Priority
Fixed/Max[3]
Ingress Limit (Kbps)
Egress Limit (Kbps)
no
00:00:00:00:00:00
00:00:00:00:00:00
untag
0
0
no
0
fixed
0
0
[1] When allow tag on ingress pkt, the port acts as 802.1Q VLAN trunk, otherwise the port acts as 802.1Q VLAN access.
[2] The 'Fixed/Max' attribute will be applied to the VLAN priority when 'Allow[1] Tag/Untag on Ingress Pkt' is set to tag. [3] Add a single VLAN tag to the ingress pkt when 'Allow[1] Tag/Untag on Ingress Pkt' is set to untag.
submit

2. In the Add Ports drop-down list, select All or a group of ports. To select multiple ports, hold the Ctrl key while clicking on your selections.
3. Select or enter the following parameters:

| Parameter | Description |
|---|---|
| Reset the MAC rules to default parameters | Click in this box to reset MAC rules when the Submit button is clicked on. |
| Global Configuration IP Range Rule | Specify Add, Delete, or No Set to add a rule, delete a rule, or perform no action when the Submit button is clicked on. |
| Activate | Specify whether the rule you are adding is enabled. |
| MAC Range | Specify the range of MAC addresses that constitutes a match for this rule. Only packets that have MAC addresses in this range are forwarded. |

| Parameter | Description |
|---|---|
| Allow Tag/Untag on Ingress Pkt. | Specify tag or untag. Tag indicates that ingress packets already matched to the MAC Rule must have a VLAN tag to be further considered; packets without a VLAN tag will be dropped. See *Allow Tag or Untag on Ingress Packet Parameter* on page 4-13. |
| VLAN | Specify a VLAN ID range. For each Global MAC Rule, if you selected Tag for Allow Tag/Untag, the VLAN field should specify either an acceptable single VLAN, or an acceptable VLAN Range, for VLAN tags on ingress packets. If you selected Untag, the VLAN field should specify a single VLAN only if you intend to have a VLAN tag added to packets; if you do not intend to have a VLAN tag added to packets, the VLAN field should be left at the 0 - 0 default. |
| Add VLAN to Ingress Pkt. | Specify whether the VLAN ID should be added to ingress packets. |
| Priority | Specify the priority to be used when adding a configured VLAN ID to a packet. |
| Fixed/Max | Specify the handling of VLAN priority (used only if the received packet is already tagged):<br>■ Fixed – The packet's original priority will automatically be replaced with the Priority specified above,<br>■ Max – The packet's original priority will be replaced with the configured Priority only if the packet's original priority is greater than the configured Priority. |
| Ingress Limit | Specify the ingress limit in kbps for packets matching this rule. |
| Egress Limit | Specify the egress limit in kbps for packets matching this rule. |

4. Click on Submit.

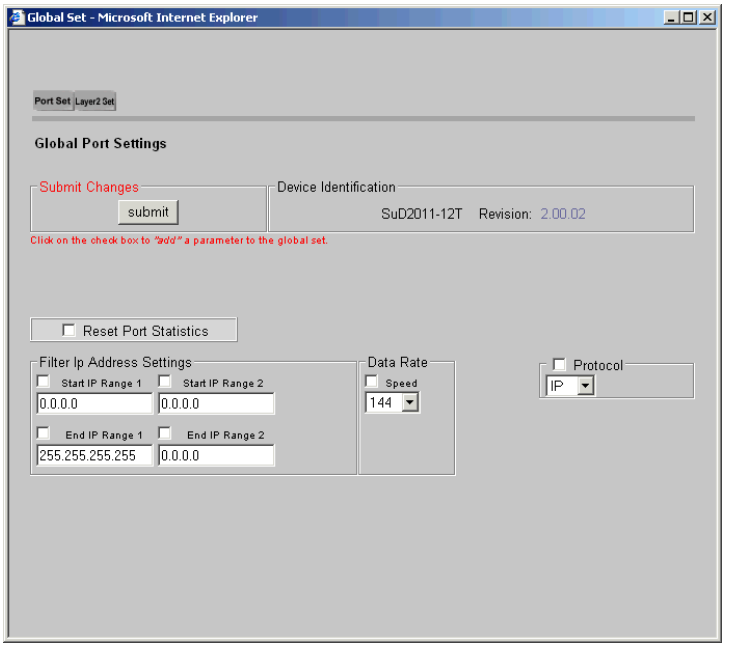
## Global Port Set (Micro DSLAMs and Mini DSLAMs)

On Micro DSLAMs and Mini DSLAMs, The Global Port Set tab is used to set port parameters.

### ▶ Procedure

To configure global Port parameters:

1. From the home screen, click on the Global Set button. The Global Port Set screen appears.




2. Select or enter the following parameters:

| Parameter | Description |
|---|---|
| Reset Port Statistics | Click in this box to reset statistics when the Submit button is clicked on. |
| Filter IP Address Settings | Specify up to two IP address ranges. Packets are accepted from source IP addresses in the ranges specified. |
| Data Rate Setting | Click in the check box to enable a maximum data rate. Select the maximum data rate in kbps from the drop-down list. |
| Protocol | Click in the check box to enable protocol detection. Select valid protocols from the drop-down list. |

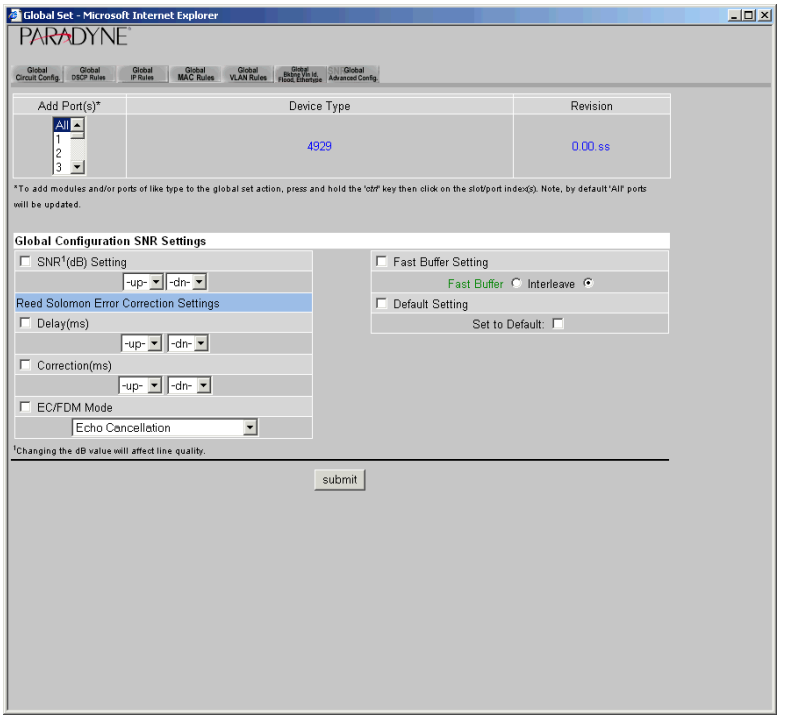
3. Click on Submit.

## Global Advanced Configuration

### ▶ Procedure

To configure SNR settings:

1. Click on the Global Advanced Config tab. The Global Configuration SNR settings screen appears.




2. In the Add Ports drop-down list, select All or a group of ports. To select multiple ports, hold the Ctrl key while clicking on your selections.
3. Select or enter the following parameters:

| Parameter | Description |
|---|---|
| SNR (dB) Setting | Specify the upstream and downstream Signal to Noise Ratio settings for the selected ports. |
| Reed Solomon Error Correction Settings: Delay | Specify the upstream and downstream Reed-Solomon delay. |
| Reed Solomon Error Correction Settings: Correction | Specify the upstream and downstream Reed-Solomon correction. |
| EC/FDM | Specify the upstream and downstream Echo Cancellation or Frequency Division Multiplexing mode. |
| Fast Buffer Setting | Specify the buffer setting: Fast or Interleave. |

| Parameter | Description |
|---|---|
| Default Setting | To return to the default settings when the Submit button is clicked on, click in the Set to Default check box. |

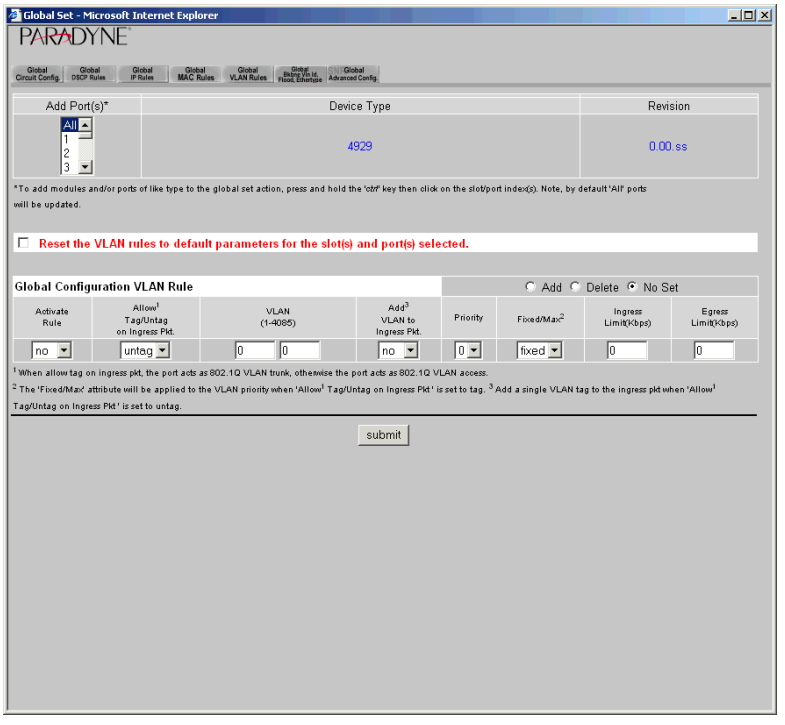
4. Click on Submit.

## Global VLAN Rules

### ▶ Procedure

To configure VLAN rules:

1. Click on the Global VLAN Rules tab. The Global VLAN Rules screen appears.


Global Set - Microsoft Internet Explorer
PARADYNE
Add Port(s)*
Device Type
Revision
All
1
2
3
4929
0.00.ss
* To add modules and/or ports of like type to the global set action, press and hold the 'ctrl' key then click on the slot/port index(s). Note, by default 'All' ports will be updated.
Reset the VLAN rules to default parameters for the slot(s) and port(s) selected.
Global Configuration VLAN Rule
Add
Delete
No Set
Activate Rule
Allow[1] Tag/Untag on Ingress Pkt.
VLAN (1-4085)
Add[3] VLAN to Ingress Pkt.
Priority
Fixed/Max[2]
Ingress Limit(Kbps)
Egress Limit(Kbps)
no
untag
0
0
no
0
fixed
0
0
[1] When allow tag on ingress pkt, the port acts as 802.1Q VLAN trunk, otherwise the port acts as 802.1Q VLAN access.
[2] The 'Fixed/Max' attribute will be applied to the VLAN priority when 'Allow[1] Tag/Untag on Ingress Pkt' is set to tag. [3] Add a single VLAN tag to the ingress pkt when 'Allow[1] Tag/Untag on Ingress Pkt' is set to untag.
submit

2. In the Add Ports drop-down list, select All or a group of ports. To select multiple ports, hold the Ctrl key while clicking on your selections.
3. Select or enter the following parameters:

| Parameter | Description |
|---|---|
| Reset the VLAN rules to default parameters | Click in this box to reset VLAN rules when the Submit button is clicked on. |
| Global Configuration VLAN Rule | Specify Add, Delete, or No Set to add a rule, delete a rule, or perform no action when the Submit button is clicked on. |

| Parameter | Description |
|---|---|
| Activate | Specify whether the rule you are adding is enabled. |
| Allow Tag/Untag on Ingress Pkt. | Specify tag or untag. Tag indicates that ingress packets already matched to the VLAN Rule must have a VLAN tag to be further considered; packets without a VLAN tag will be dropped. See *Allow Tag or Untag on Ingress Packet Parameter* on page 4-13. |
| VLAN | Specify a VLAN ID range that constitutes a match of this rule. |
| Add VLAN to Ingress Pkt. | Specify whether the VLAN ID should be added to ingress packets. |
| Priority | Specify the priority to be used when adding a configured VLAN ID to a packet. |
| Fixed/Max | Specify the handling of VLAN priority (used only if the received packet is already tagged):<br>■ Fixed – The packet's original priority will automatically be replaced with the Priority specified above,<br>■ Max – The packet's original priority will be replaced with the configured Priority only if the packet's original priority is greater than the configured Priority. |
| Ingress Limit | Specify the ingress limit in kbps for packets matching this rule. |
| Egress Limit | Specify the egress limit in kbps for packets matching this rule. |

4. Click on Submit.

# System Utilities

# 5

## Overview

What System Utilities screens are available is device dependent. System Utilities screens include:

- Circuit Summary – Provides access to the following screens:
  - Circuit Configuration. See *Circuit (Port) Configuration for DSL Ports* on page 5-3.
  - DSCP Rules. See *DSCP Rules* on page 5-8.
  - IP Rules. See *IP Rules* on page 5-10.
  - MAC Rules. See *MAC Rules* on page 5-12.
  - VLAN Rules. See *VLAN Rules* on page 5-14.
  - Backbone VLAN, Flood, and Ethertype. See *Backbone VLAN ID* on page 5-17.
  - Port Statistics. See *Port Statistics* on page 5-19.
  - Port Copy. See *Port Copy, Single-Slot Devices* on page 5-21.
  - SNR Advanced Configuration. See *SNR Advanced Configuration* on page 5-23.
- Circuit Search – Lets you search for circuits by their Circuit Identifiers and display their configurations. See *Circuit Search* on page 5-24.
- DSLAM Users – Displays the current users of the web interface. See *DSLAM Users* on page 5-26.
- Diagnostics – Lets you run tests on the device. See *Diagnostics* on page 5-27.
- Show Help – Links to this manual.
- Refresh Screen – Refreshes the front panel display.

# Circuit Summary

Use the Circuit Summary screen to display information about port configurations.

## ▶ Procedure

To display the circuit summary:

1. From the home screen, click on the Circuit Summary button. The Circuit Summary screen appears.

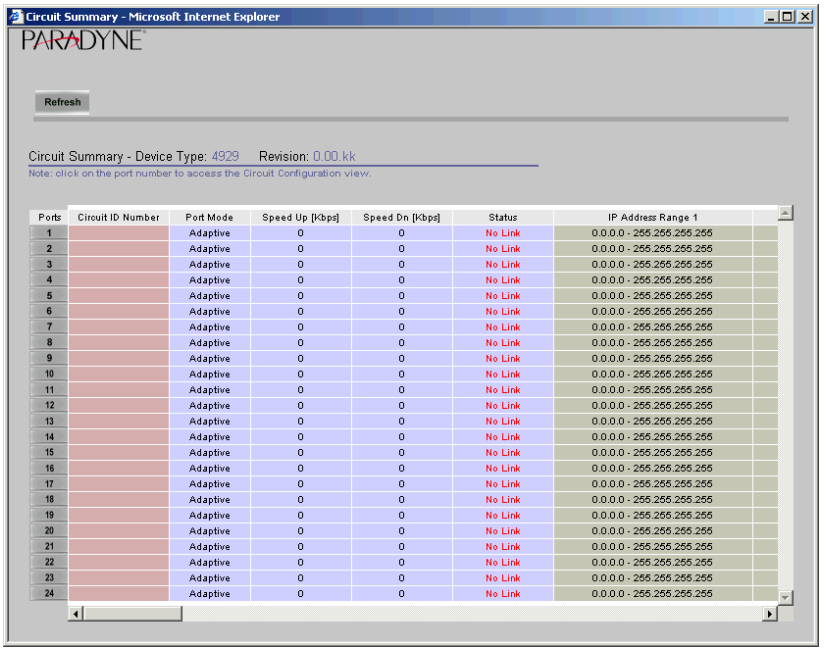



**Figure 5-1. Circuit Summary Screen**

2. Click on Refresh to view current information. Click on a port number in the leftmost column to view the Circuit Configuration screen.

## Circuit (Port) Configuration for DSL Ports

Use the Circuit Configuration screen to set the parameters for a single DSL port.

### ▶ Procedure

To configure circuit parameters for a DSL port:

1. From the home screen, click on one of the DSL port LEDs. Alternatively, click on the Circuit Summary button, then click on a Port number on the left side of the Circuit Summary listing. The Circuit Configuration screen appears.

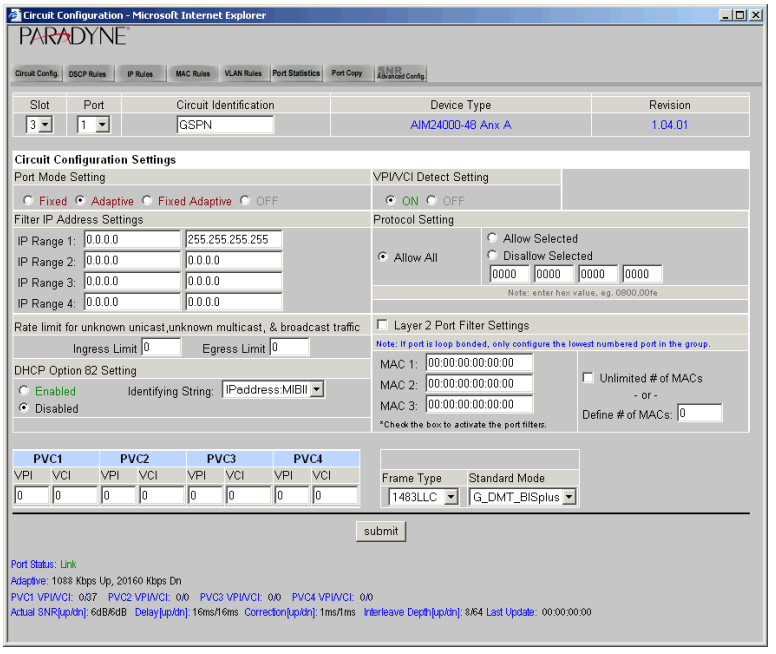



**Figure 5-2. Circuit Configuration Screen**

2. Select or enter the following parameters:

| Parameter | Description |
|---|---|
| Port | Select a port from the drop-down list. |

| Parameter | Description |
|---|---|
| Port Mode Setting | Specify a port mode:<br>■ Fixed – The upstream and downstream rates are fixed at the Data Rate Setting values.<br>■ Adaptive – The ports will automatically train up to the best possible speed supported by the DSLAM, the modem at the remote end, and the copper cable pair connecting the two.<br>■ Fixed Adaptive – The ports will automatically train up to the best possible speed, up to the user-specified maximum upstream and downstream rates in Data Rate Setting.<br>The Data Rate Setting field does not appear if Port Mode is Adaptive. It appears after you change the Port Mode from Fixed to Adaptive or Fixed Adaptive and click on Submit. |
| VPI/VCI Detect Setting | Specify the port behavior with regard to VPI/VCI detection:<br>■ On – The port will automatically monitor the line to determine the VPI and VCI settings of the remote ADSL modem to which it is connected and set itself accordingly on PVC 1. If no ATM cells are detected (at any VPI/VCI setting), the port will default to VPI 0 and VCI 35. Thereafter, once it does detect ATM cells from the remote ADSL modem, it will reconfigure VPI and VCI to the same settings at which the ATM cells from the remote ADSL modem were detected.<br>■ Off – The port will default to VPI 0 and VCI 35 on PVC 1 unless the port was previously set at VPI/VCI Detect on and had already detected the VPI and VCI settings of the remote ADSL modem. In this case, turning the VPI/VCI function off will lock in the previously detected settings unless the VPI and VCI values are altered manually. |
| Data Rate Setting | If you have selected a Port Mode of Fixed or Fixed Adaptive, specify the maximum upstream and downstream rates, in bps. |
| Filter IP Address Settings | Specify up to four IP address ranges. Packets are accepted from IP addresses in the ranges specified. |
| Protocol Setting | Click in the check box to enable Protocol Setting detection. Select Allow Selected and specify up to four protocol codes allowed on the ports. These codes are 2-byte Ethertypes; for example, 0800 is IPv4 and 0806 is ARP.<br>See www.iana.org/assignments/ethernet-numbers for a complete list of Ethertypes.. |

| Parameter | Description |
|---|---|
| DHCP Option 82 | Specify whether DHCP Option 82 is enabled, and if it is, whether packets are identified by IP address or circuit ID. This identifier is added to packets to let your DHCP Server recognize which DSLAM port an IP address request is coming from, thereby allowing the DHCP Server to limit the number of IP addresses assigned per port. |
| Layer 2 Port Filter Settings | Click in the check box if you want to filter by MAC address the packets on this port. |
| MAC 1 – MAC 3 | Enter up to three MAC addresses. |
| Unlimited # of MACs or Define # of MACs | Specify whether the number of MAC addresses with access to the port is to be limited to a certain number (not including MAC 1, MAC 2, and MAC 3, if specified above). |
| PVC1 – PVC4 | Specify the VPI and VCI of up to four PVC indexes. These can be applied to packets coming in through a subscriber connection according to the DSCP, IP, MAC, and VLAN rules you define. Each index must be assigned the same VPI and VCI values as the port on the remote ADSL modem to which that index will be assigned in order for traffic to traverse the line successfully. |
| Frame Type | Specify whether the ports use Logical Link Control (LLC) or Virtual Channel Multiplexing (VCM) bridged encapsulation. These are defined in RFC 1483. |
| Standard Mode (ADSL) | Specify the port's line code:<br>■ MULTIMODE – The port uses the line code of its partner modem (default)<br>■ T1_413 – DMT modulation as defined in ANSI T1.413<br>■ G_Lite – G.992.2 (G.lite) modulation<br>■ G_DMT – G.992.1 (G.dmt) modulation<br>■ ALCTL – Alcatel modulation<br>■ G_DMT_BIS – G.992.3 (ADSL2) modulation<br>■ G_DMT_BISplus – G.992.5 (ADSL2+) modulation<br>■ READSL2 – Reach Expanded ADSL2 (G.992.3 in Annex L format) |
| Line Code (SHDSL | Specify the port's line code:<br>CAP – Carrierless Amplitude and Phase modulation<br>2B1Q – Two Binary, one quaternary<br>G.SHDSL – G.991.2 |

3. Click on Submit.

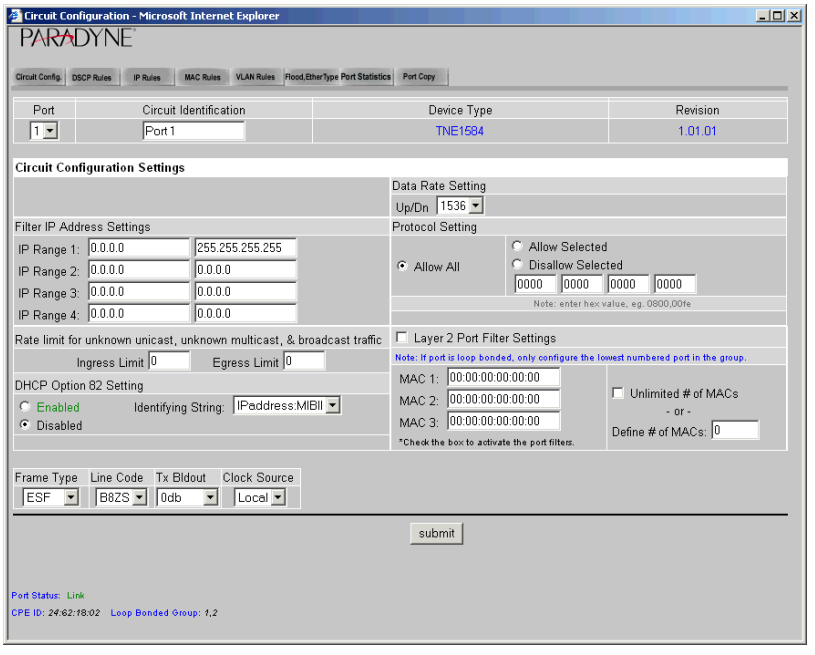
## Circuit Configuration for a T1 or E1 Port

Use the Circuit Configuration screen to set the parameters for a single T1 or E1 port on a Network Extender.

### ▶ Procedure

To configure circuit parameters for a T1 or E1 port:

1. From the home screen, click on one of the E1 or T1 port LEDs. Alternatively, click on the Circuit Summary button, then click on a Port number on the left side of the Circuit Summary listing. The Circuit Configuration screen appears.




2. Select or enter the following parameters:

| Parameter | Description |
|---|---|
| Reset Port Statistics | Click in this box to reset statistics when the Submit button is clicked on. |
| Data Rate Setting | Specify the maximum upstream and downstream rate, in kbps. |
| Filter IP Address Settings | Specify up to four IP address ranges. Packets are accepted only from source IP addresses in the ranges specified. |
| Protocol Setting | Click in the check box to enable Protocol Setting detection. Select Allow Selected and specify up to four Ethertypes allowed on the port. |
| Rate Limit | Specify the Ingress Limit and Egress Limit for unknown unicast traffic, unknown multicast traffic, and broadcast traffic, in kbps. Zero denotes no limit. |

| Parameter | Description |
|---|---|
| Layer 2 Port Filter | Specify whether Layer 2 port filtering is enabled or disabled. |
| # of MACs | Specify whether an unlimited number of MAC addresses, or a specified limit number of MAC addresses, is allowed to access the port. Specify the MAC addresses in MAC 1 through MAC 3. |
| DHCP Option 82 | Specify whether DHCP Option 82 is enabled, and if it is, whether packets are identified by IP address or circuit ID. This identifier is added to packets to let your DHCP Server recognize which DSLAM port an IP address request is coming from, thereby allowing the DHCP Server to limit the number of IP addresses assigned per port. |
| Frame Type | Specify the port's frame type. |
| Line Code | Specify the port's line code. |
| Tx Bldout | Specify the transmission line buildout. |
| Clock Source | Specify whether the port receives its clocking from the loop. |

3. Click on Submit.

# DSCP Rules

## ▶ Procedure

To configure DSCP rules:

1. Click on the DSCP Rules tab. The DSCP Rules screen appears.

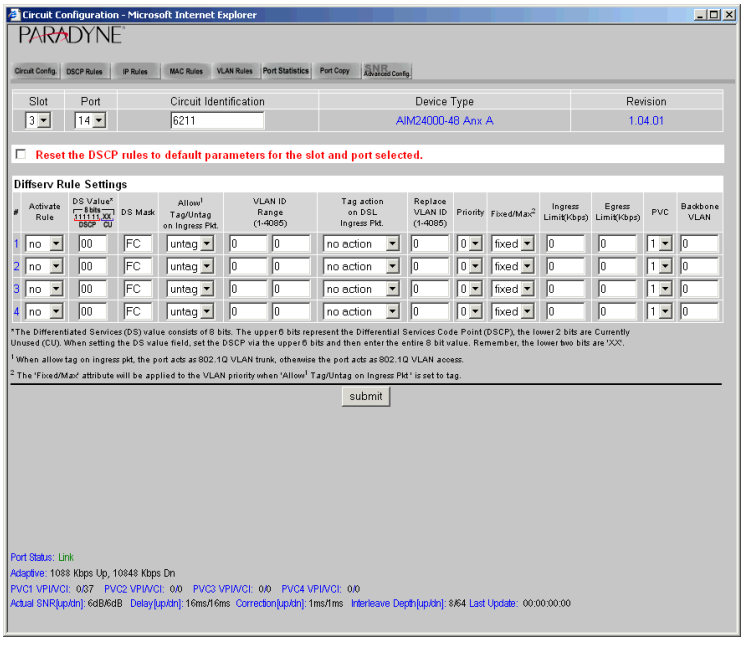



**Figure 5-3. DSCP Rules Screen**

2. Select or enter the following parameters:

| Parameter | Description |
|---|---|
| Port | Select a port from the drop-down list. |
| Reset the DSCP rules to default parameters | Click in this box to reset DSCP rules when the Submit button is clicked on. |
| Activate | Specify whether the rule is active. |
| DS Value | Specify the Differentiated Services value. The DS Value of a packet is a hexadecimal value calculated from the upper six bits of an eight-bit field in the packet's IP header. |
| DS Mask | Specify the DS mask. The DS Mask is a hexadecimal value that indicates which of the DSCP's upper six bits will be utilized in considering a packet's DSCP type. Default is FC, indicating that all of the DSCP's upper six bits will be used in calculating the packet's DS Value. |

| Parameter | Description |
|---|---|
| Allow Tag/Untag on Ingress Pkt. | Specify tag or untag. Tag indicates that ingress packets already matched to the Diffserv Rule must have a VLAN tag to be further considered; packets without a VLAN tag will be dropped. See *Allow Tag or Untag on Ingress Packet Parameter* in Chapter 4, *System Configuration Screens*. |
| VLAN ID Range | Specify a VLAN ID range. For each rule, if you selected Tag for Allow Tag/Untag, the VLAN field should specify either an acceptable single VLAN, or an acceptable VLAN Range, for VLAN tags on ingress packets. If you selected Untag, the VLAN field should specify a single VLAN only if you intend to have a VLAN tag added to packets; if you do not intend to have a VLAN tag added to packets, the VLAN field should be left at the 0 - 0 default. |
| Add VLAN to Ingress Pkt. | Specify whether the VLAN ID should be added to ingress packets. |
| Priority | Specify the priority to be used when adding a configured VLAN ID to a packet. |
| Fixed/Max | Specify the handling of VLAN priority (used only if the received packet is already tagged):<br>■ Fixed – The packet's original priority will automatically be replaced with the Priority specified above,<br>■ Max – The packet's original priority will be replaced with the configured Priority only if the packet's original priority is greater than the configured Priority. |
| Ingress Limit | Specify the ingress limit in kbps for packets matching this rule. |
| Egress Limit | Specify the egress limit in kbps for packets matching this rule. |
| PVC | Select a PVC index (1–4). The PVC Index parameter applies to ADSL ports only.<br>PVC Indexes will only be applied to packets coming in through a subscriber connection (WAN). They are not applicable to packets coming in through an uplink connection. |

| Parameter | Description |
|---|---|
| Backbone VLAN ID | Used in conjunction with standard VLAN tags, a single Backbone VLAN tag will become the primary identifier, allowing a router with backbone capabilities to make smarter decisions in directing traffic to the proper network. Once a packet has reached the proper network, its standard VLAN tags will direct it to the appropriate port. To configure Backbone VLAN ID, enter a single VLAN tag value between 0 and 4085. Default is 0, indicating that the Backbone VLAN function is not in use.<br><br>A Backbone VLAN tag cannot be used independently; standard VLAN tags must also be configured. Additionally, the DSLAM uplink connection must run through a router in order for a Backbone VLAN tag to function. |

3. Click on Submit.

## IP Rules

### ▶ Procedure

To configure IP rules:

1. Click on the IP Rules tab. The IP Rules screen appears.

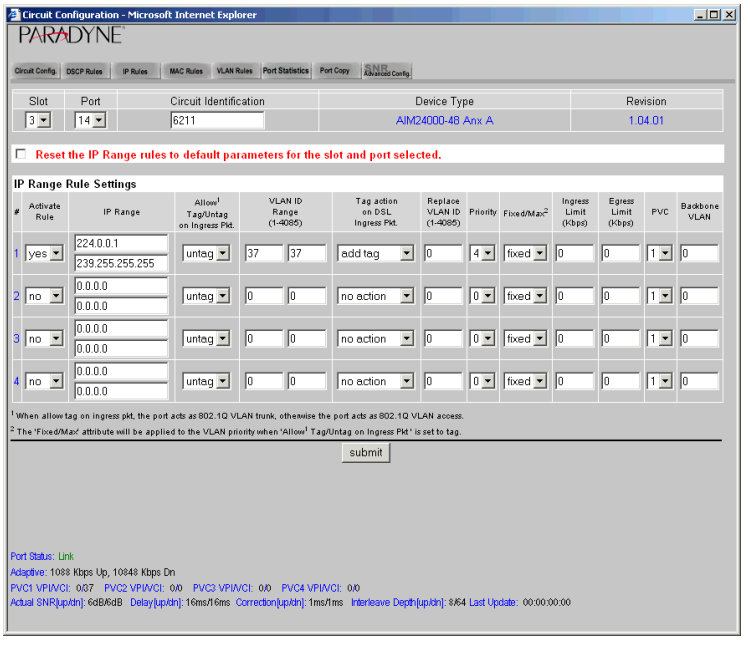

Circuit Configuration - Microsoft Internet Explorer
PARADYNE
Circuit Config.
DSCP Rules
IP Rules
MAC Rules
VLAN Rules
Port Statistics
Port Copy
SNR Advanced Config
Slot
Port
Circuit Identification
Device Type
Revision
3
14
6211
AIM24000-48 Anx A
1.04.01
Reset the IP Range rules to default parameters for the slot and port selected.
IP Range Rule Settings
# Activate Rule IP Range Allow[1] Tag/Untag on Ingress Pkt. VLAN ID Range (1-4085) Tag action on DSL Ingress Pkt. Replace VLAN ID (1-4085) Priority Fixed/Max[2] Ingress Limit (Kbps) Egress Limit (Kbps) PVC Backbone VLAN
1 yes 224.0.0.1 239.255.255.255 untag 37 37 add tag 0 4 fixed 0 0 1 0
2 no 0.0.0.0 0.0.0.0 untag 0 0 no action 0 0 fixed 0 0 1 0
3 no 0.0.0.0 0.0.0.0 untag 0 0 no action 0 0 fixed 0 0 1 0
4 no 0.0.0.0 0.0.0.0 untag 0 0 no action 0 0 fixed 0 0 1 0
[1] When allow tag on ingress pkt, the port acts as 802.1Q VLAN trunk, otherwise the port acts as 802.1Q VLAN access.
[2] The 'Fixed/Max' attribute will be applied to the VLAN priority when 'Allow' Tag/Untag on Ingress Pkt ' is set to tag.
submit
Port Status: Link
Adaptive: 1088 Kbps Up, 10848 Kbps Dn
PVC1 VPI/VCI: 0/37 PVC2 VPI/VCI: 0/0 PVC3 VPI/VCI: 0/0 PVC4 VPI/VCI: 0/0
Actual SNR(up/dn): 6dB/6dB Delay(up/dn): 16ms/16ms Correction(up/dn): 1ms/1ms Interleave Depth(up/dn): 8/64 Last Update: 00:00:00:00

**Figure 5-4. IP Rules Screen**

2. Select or enter the following parameters:

| Parameter | Description |
|---|---|
| Port | Select a port from the drop-down list. |
| Activate | Specify whether the rule is active. |
| IP Range | Specify the range of IP addresses that constitutes a match for this rule. |
| Allow Tag/Untag on Ingress Pkt. | Specify tag or untag. Tag indicates that ingress packets already matched to the IP Rule must have a VLAN tag to be further considered; packets without a VLAN tag will be dropped. See *Allow Tag or Untag on Ingress Packet Parameter* in Chapter 4, *System Configuration Screens*. |
| VLAN ID Range | Specify a VLAN ID range. For each IP Range Rule, if you selected Tag for Allow Tag/Untag, the VLAN field should specify either an acceptable single VLAN, or an acceptable VLAN Range, for VLAN tags on ingress packets. If you selected Untag, the VLAN field should specify a single VLAN only if you intend to have a VLAN tag added to packets; if you do not intend to have a VLAN tag added to packets, the VLAN field should be left at the 0 - 0 default. |
| Add VLAN to Ingress Pkt. | Specify whether the VLAN ID should be added to ingress packets. |
| Priority | Specify the priority to be used when adding a configured VLAN ID to a packet. |
| Fixed/Max | Specify the handling of VLAN priority (used only if the received packet is already tagged):<br>■ Fixed – The packet's original priority will automatically be replaced with the Priority specified above,<br>■ Max – The packet's original priority will be replaced with the configured Priority only if the packet's original priority is greater than the configured Priority. |
| Ingress Limit | Specify the ingress limit in kbps for packets matching this rule. |
| Egress Limit | Specify the egress limit in kbps for packets matching this rule. |
| PVC | Select a PVC index (1–4). The PVC Index parameter applies to ADSL ports only.<br>PVC Indexes will only be applied to packets coming in through a subscriber connection (WAN). They are not applicable to packets coming in through an uplink connection. |

| Parameter | Description |
|---|---|
| Backbone VLAN ID | Used in conjunction with standard VLAN tags, a single Backbone VLAN tag will become the primary identifier, allowing a router with backbone capabilities to make smarter decisions in directing traffic to the proper network. Once a packet has reached the proper network, its standard VLAN tags will direct it to the appropriate port. To configure Backbone VLAN ID, enter a single VLAN tag value between 0 and 4085. Default is 0, indicating that the Backbone VLAN function is not in use.<br><br>A Backbone VLAN tag cannot be used independently; standard VLAN tags must also be configured. Additionally, the DSLAM uplink connection must run through a router in order for a Backbone VLAN tag to function. |

3. Click on Submit.

## MAC Rules

### ▶ Procedure

To configure MAC rules:

1. Click on the MAC Rules tab. The MAC Rules screen appears.

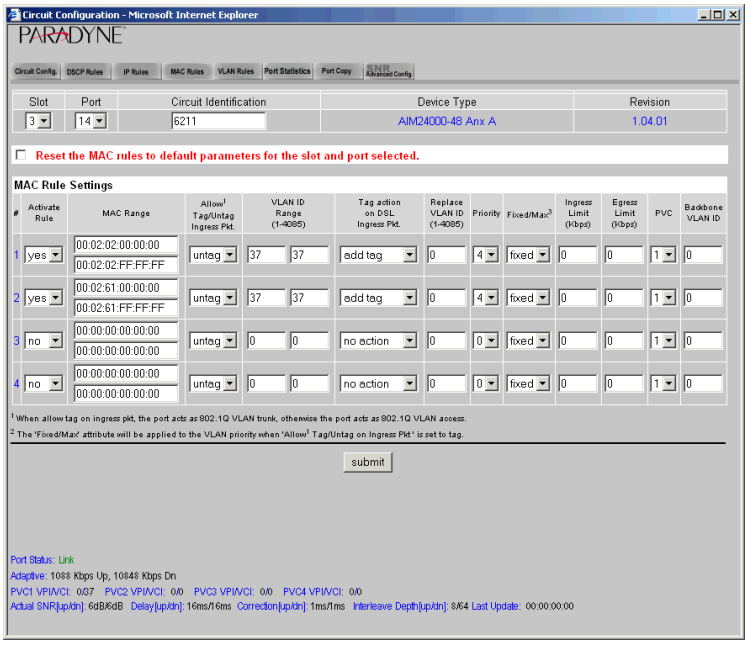

Circuit Configuration - Microsoft Internet Explorer
PARADYNE
Circuit Config.
DSCP Rules
IP Rules
MAC Rules
VLAN Rules
Port Statistics
Port Copy
SNR Advanced Config
Slot
Port
Circuit Identification
Device Type
Revision
3
14
6211
AIM24000-48 Anx A
1.04.01
Reset the MAC rules to default parameters for the slot and port selected.
MAC Rule Settings
# Activate Rule MAC Range Allow[1] Tag/Untag Ingress Pkt. VLAN ID Range (1-4095) Tag action on DSL Ingress Pkt. Replace VLAN ID (1-4085) Priority Fixed/Max[2] Ingress Limit (Kbps) Egress Limit (Kbps) PVC Backbone VLAN ID
1 yes 00:02:02:00:00:00 00:02:02:FF:FF:FF untag 37 37 add tag 0 4 fixed 0 0 1 0
2 yes 00:02:61:00:00:00 00:02:61:FF:FF:FF untag 37 37 add tag 0 4 fixed 0 0 1 0
3 no 00:00:00:00:00:00 00:00:00:00:00:00 untag 0 0 no action 0 0 fixed 0 0 1 0
4 no 00:00:00:00:00:00 00:00:00:00:00:00 untag 0 0 no action 0 0 fixed 0 0 1 0
[1] When allow tag on ingress pkt, the port acts as 802.1Q VLAN trunk, otherwise the port acts as 802.1Q VLAN access.
[2] The 'Fixed/Max' attribute will be applied to the VLAN priority when 'Allow[1] Tag/Untag on Ingress Pkt' is set to tag.
submit
Port Status: Link
Adaptive: 1088 Kbps Up, 10848 Kbps Dn
PVC1 VPI/VCI: 0/37 PVC2 VPI/VCI: 0/0 PVC3 VPI/VCI: 0/0 PVC4 VPI/VCI: 0/0
Actual SNR[up/dn]: 6dB/6dB Delay[up/dn]: 16ms/16ms Correction[up/dn]: 1ms/1ms Interleave Depth[up/dn]: 8/64 Last Update: 00:00:00:00

**Figure 5-5. MAC Rules Screen**

2. Select or enter the following parameters:

| Parameter | Description |
|---|---|
| Port | Select a port from the drop-down list. |
| Reset the MAC rules to default parameters | Click in this box to reset MAC rules when the Submit button is clicked on. |
| Activate | Specify whether the rule is active. |
| MAC Range | Specify the range of MAC addresses that constitutes a match for this rule. |
| Allow Tag/Untag on Ingress Pkt. | Specify tag or untag. Tag indicates that ingress packets already matched to the MAC Rule must have a VLAN tag to be further considered; packets without a VLAN tag will be dropped. See *Allow Tag or Untag on Ingress Packet Parameter* in Chapter 4, *System Configuration Screens*. |
| VLAN ID Range | Specify a VLAN ID range. For each MAC Rule, if you selected Tag for Allow Tag/Untag, the VLAN field should specify either an acceptable single VLAN, or an acceptable VLAN Range, for VLAN tags on ingress packets. If you selected Untag, the VLAN field should specify a single VLAN only if you intend to have a VLAN tag added to packets; if you do not intend to have a VLAN tag added to packets, the VLAN field should be left at the 0 - 0 default. |
| Add VLAN to Ingress Pkt. | Specify whether the VLAN ID should be added to ingress packets. |
| Priority | Specify the priority to be used when adding a configured VLAN ID to a packet. |
| Fixed/Max | Specify the handling of VLAN priority (used only if the received packet is already tagged):<br>■ Fixed – The packet's original priority will automatically be replaced with the Priority specified above,<br>■ Max – The packet's original priority will be replaced with the configured Priority only if the packet's original priority is greater than the configured Priority. |
| Ingress Limit | Specify the ingress limit in kbps for packets matching this rule. |
| Egress Limit | Specify the egress limit in kbps for packets matching this rule. |
| PVC | Select a PVC index (1–4). The PVC Index parameter applies to ADSL ports only.<br>PVC Indexes will only be applied to packets coming in through a subscriber connection (WAN). They are not applicable to packets coming in through an uplink connection. |

| Parameter | Description |
|---|---|
| Backbone VLAN ID | Used in conjunction with standard VLAN tags, a single Backbone VLAN tag will become the primary identifier, allowing a router with backbone capabilities to make smarter decisions in directing traffic to the proper network. Once a packet has reached the proper network, its standard VLAN tags will direct it to the appropriate port. To configure Backbone VLAN ID, enter a single VLAN tag value between 0 and 4085. Default is 0, indicating that the Backbone VLAN function is not in use.<br><br>A Backbone VLAN tag cannot be used independently; standard VLAN tags must also be configured. Additionally, the DSLAM uplink connection must run through a router in order for a Backbone VLAN tag to function. |

3. Click on Submit.

## VLAN Rules

### ▶ Procedure

To configure VLAN rules:

1. Click on the VLAN Rules tab. The VLAN Rules screen appears.

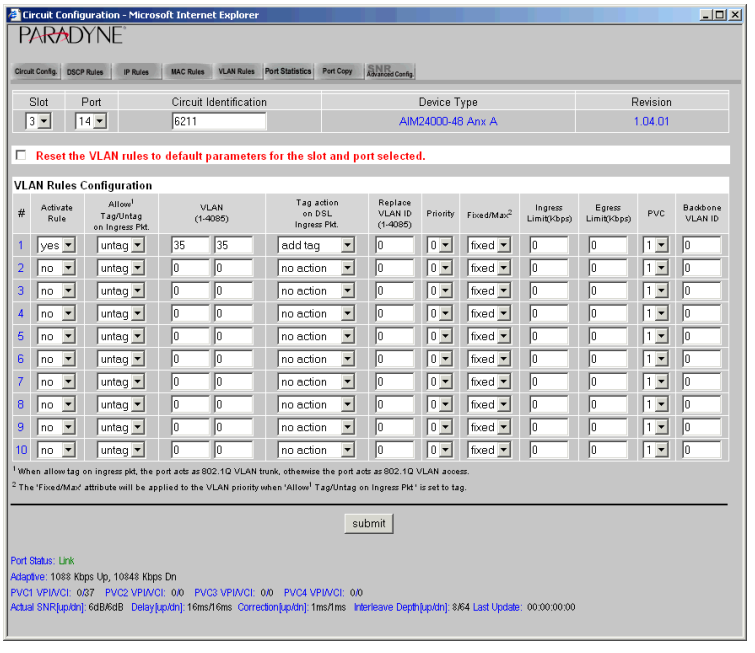

Circuit Configuration - Microsoft Internet Explorer
PARADYNE
Circuit Config.
DSCP Rules
IP Rules
MAC Rules
VLAN Rules
Port Statistics
Port Copy
SNR Advanced Config
Slot
Port
Circuit Identification
Device Type
Revision
3
14
6211
AIM24000-48 Anx A
1.04.01
Reset the VLAN rules to default parameters for the slot and port selected.
VLAN Rules Configuration
# Activate Rule Allow[1] Tag/Untag on Ingress Pkt. VLAN (1-4085) Tag action on DSL Ingress Pkt. Replace VLAN ID (1-4085) Priority Fixed/Max[2] Ingress Limit(Kbps) Egress Limit(Kbps) PVC Backbone VLAN ID
1 yes untag 35 35 add tag 0 0 fixed 0 0 1 0
2 no untag 0 0 no action 0 0 fixed 0 0 1 0
3 no untag 0 0 no action 0 0 fixed 0 0 1 0
4 no untag 0 0 no action 0 0 fixed 0 0 1 0
5 no untag 0 0 no action 0 0 fixed 0 0 1 0
6 no untag 0 0 no action 0 0 fixed 0 0 1 0
7 no untag 0 0 no action 0 0 fixed 0 0 1 0
8 no untag 0 0 no action 0 0 fixed 0 0 1 0
9 no untag 0 0 no action 0 0 fixed 0 0 1 0
10 no untag 0 0 no action 0 0 fixed 0 0 1 0
[1] When allow tag on ingress pkt, the port acts as 802.1Q VLAN trunk, otherwise the port acts as 802.1Q VLAN access.
[2] The 'Fixed/Max' attribute will be applied to the VLAN priority when 'Allow[1] Tag/Untag on Ingress Pkt' is set to tag.
submit
Port Status: Link
Adaptive: 1088 Kbps Up, 10848 Kbps Dn
PVC1 VPI/VCI: 0/37 PVC2 VPI/VCI: 0/0 PVC3 VPI/VCI: 0/0 PVC4 VPI/VCI: 0/0
Actual SNR[up/dn]: 6dB/6dB Delay[up/dn]: 16ms/16ms Correction[up/dn]: 1ms/1ms Interleave Depth[up/dn]: 8/64 Last Update: 00:00:00:00

**Figure 5-6. VLAN Rules Screen**

2. Select or enter the following parameters:

| Parameter | Description |
|---|---|
| Port | Select a port from the drop-down list. |
| Reset the VLAN rules to default parameters | Click in this box to reset VLAN rules when the Submit button is clicked on. |
| Activate | Specify whether the rule is active. |
| Allow Tag/Untag on Ingress Pkt. | Specify tag or untag.<br>Tag indicates that ingress packets already matched to the VLAN Rule must have a VLAN tag to be further considered; packets without a VLAN tag will be dropped.<br>Untag indicates that ingress packets already matched to the VLAN Rule cannot have a VLAN tag to be further considered; packets with a VLAN tag will be dropped. There can be only one untagged rule. The DSLAM tries to match to a VLAN rule traffic that has not matched any other rule type. If the packet is untagged it will match the one and only allowed VLAN rule that indicates Untagged. If the packet has a tag then the DSLAM will try to find a Tagged rule that has a VLAN range defined with the packet's VLAN ID. If it finds one it will use that rule, and then the packet will be checked for all other criteria. If it does not find a rule to match the packet VLAN ID the packet is dropped.<br>See *Allow Tag or Untag on Ingress Packet Parameter* in Chapter 4, *System Configuration Screens*. |
| VLAN | Specify a VLAN ID range that constitutes a match of this rule. If you selected Untag, the VLAN field should specify a single VLAN only if you intend to have a VLAN tag added to packets; if you do not intend to have a VLAN tag added to packets, the VLAN field should be left at the 0 - 0 default. |
| Add VLAN to Ingress Pkt. | Specify whether the VLAN ID should be added to ingress packets. |
| Priority | Specify the priority to be used when adding a configured VLAN ID to a packet. |
| Fixed/Max | Specify the handling of VLAN priority (used only if the received packet is already tagged):<br>■ Fixed – The packet's original priority will automatically be replaced with the Priority specified above,<br>■ Max – The packet's original priority will be replaced with the configured Priority only if the packet's original priority is greater than the configured Priority. |
| Ingress Limit | Specify the ingress limit in kbps for packets matching this rule. |

| Parameter | Description |
|---|---|
| Egress Limit | Specify the egress limit in kbps for packets matching this rule. |
| PVC | Select a PVC index (1–4). The PVC Index parameter applies to ADSL ports only.<br>PVC Indexes will only be applied to packets coming in through a subscriber connection (WAN). They are not applicable to packets coming in through an uplink connection. |
| Backbone VLAN ID | Used in conjunction with standard VLAN tags, a single Backbone VLAN tag will become the primary identifier, allowing a router with backbone capabilities to make smarter decisions in directing traffic to the proper network. Once a packet has reached the proper network, its standard VLAN tags will direct it to the appropriate port. To configure Backbone VLAN ID, enter a single VLAN tag value between 0 and 4085. Default is 0, indicating that the Backbone VLAN function is not in use.<br>A Backbone VLAN tag cannot be used independently; standard VLAN tags must also be configured. Additionally, the DSLAM uplink connection must run through a router in order for a Backbone VLAN tag to function. |

3. Click on Submit.

## Backbone VLAN ID

### ▶ Procedure

To configure the backbone VLAN ID, flood type, and Ethertype:

1. Click on the Bkbone VLAN Id, Flood, Ethertype tab. The Bkbone VLAN Id, Flood, Ethertype screen appears.

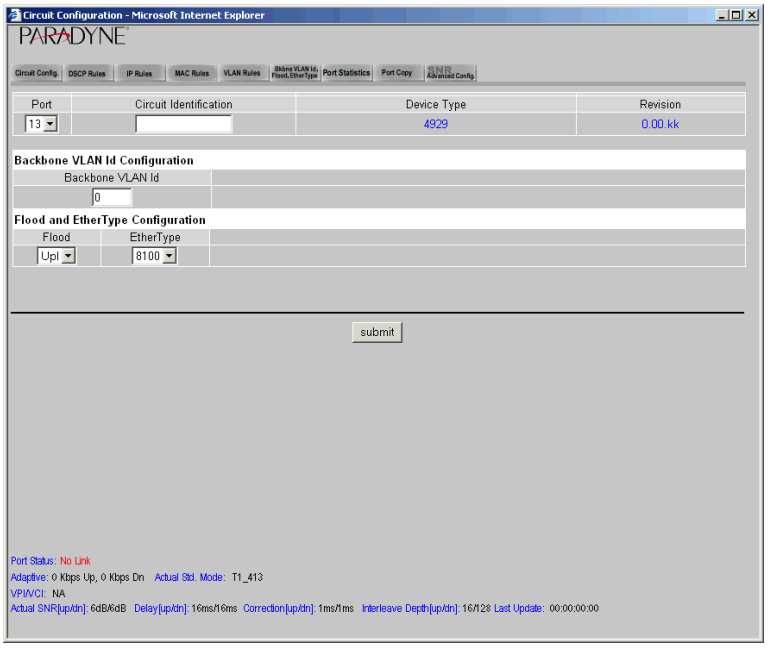



**Figure 5-7. Backbone VLAN ID, Flood, and Ethertype Screen**

2. Select or enter the following parameters:

| Parameter | Description |
|---|---|
| Backbone VLAN Id Configuration | Specify the Backbone VLAN ID. Also called QinQ or VLAN stacking, the Backbone VLAN ID is used in conjunction with standard VLAN tags. The single Backbone VLAN tag will become the primary identifier, allowing a router with backbone capabilities to make smarter decisions in directing unlearned traffic. This helps prevent traffic from being flooded to incorrect networks. Once packets have been directed to the correct network by the Backbone VLAN tag, standard VLAN tags will then direct the packets to the appropriate ports. The default is zero, meaning the port is not configured to utilize the Backbone-VLAN function.<br><br>A Backbone-VLAN tag cannot be used independently; stardard VLAN tags must be set. Additionally, the DSLAM uplink connection must run through a router in order for a Backbone VLAN tag to function. |

| Parameter | Description |
|---|---|
| Flood | Specify the Flood setting. Flood refers to the method in which interface modules handle unknown unicasts (traffic directed to a single MAC Address), broadcasts (traffic directed to all MAC Addresses) and multicasts (traffic directed to multiple MAC Addresses) for each port.<br>■ Upl (Uplink) – Unknown unicast, broadcast and multicast traffic is flooded only to the DSLAM uplink interface ports. This prevents communication between interface ports without the intervention of an upstream device such as a router. If communication between interface ports is desired, the upstream device must be properly configured to allow it.<br>■ Vln (VLAN) – Unknown unicast, broadcast and multicast traffic is flooded to the DSLAM's ADSL ports (within the sender's VLAN range) in addition to the uplink interface ports. |
| Ethertype | Specify the Ethertype of the backbone tag added to traffic if the backbone VLAN ID is configured. Used only in conjunction with backbone VLANs. |

3. Click on Submit.

## Port Statistics

### ▶ Procedure

To view port statistics:

1. Click on the Port Statistics tab. The Port Statistics screen appears.

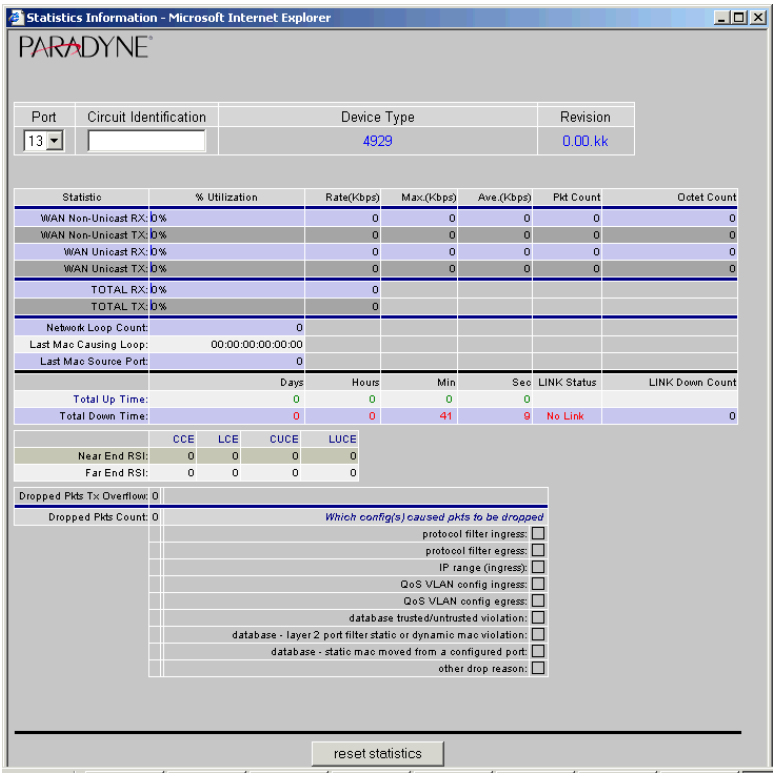



**Figure 5-8. Port Statistics Screen**

2. Click on Reset Statistics to set all statistics to zero.

At the bottom of the screen, dropped packets are shown:

- Dropped Pkts Tx Overflow shows the number of packets dropped due to lack of resources.
- Dropped Pkts Count shows the number of packets dropped because they violated the port configuration. A check mark appears next to the violation or

violations encountered. They are listed in Table 5-1, Reasons for Packets Being Dropped.

**Table 5-1. Reasons for Packets Being Dropped**

| Description | Meaning |
|---|---|
| Protocol Filter Ingress<br>Protocol Filter Egress | The packet did not have the protocol defined as a requirement for the port. |
| IP Range (Ingress) | The packet's source IP address matches none of the defined IP address ranges. |
| QOS VLAN Config Ingress<br>QOS VLAN Config Egress | The packet failed to match a rule in any of the MTM categories (DCSP, IP address, MAC address, and VLAN). |
| Database Trusted/Untrusted Violation | More MAC addresses than configured or different MAC addresses than configured sent a packet to the port. |
| Database - Layer 2 Filter Static or Dynamic MAC Violation | A statically configured MAC address was seen on a different port than expected. |
| Other Drop Reason | Other possible reasons include:<br>■ Packet has a source address of a multicast type (not unicast as it should be)<br>■ There are no other ports active or there are no ports that want to see the particular VLAN in the packet |

## Port Copy, Single-Slot Devices

The Port Copy screen lets you copy a source port configuration to other ports.

### ▶ Procedure

To copy a port configuration to one or more other ports on a one-slot device:

1. Click on Port Copy. The Port Copy screen appears.

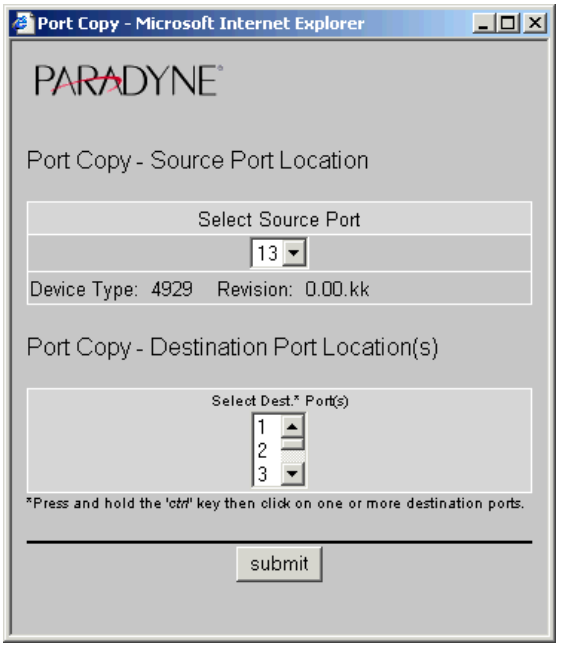



**Figure 5-9. Port Copy Screen, Single Slot Device**

2. Select a source port, then one or more destination ports.
3. Click on Submit. The configuration of the source port is copied to the destination port or ports.

## Port Copy, Multi-Slot Devices

The Port Copy screen lets you copy a source port configuration to other ports, including those on cards in other slots.

### ▶ Procedure

To copy a port configuration to one or more other ports on a multi-slot device:

1. Click on Port Copy. The Port Copy screen appears.

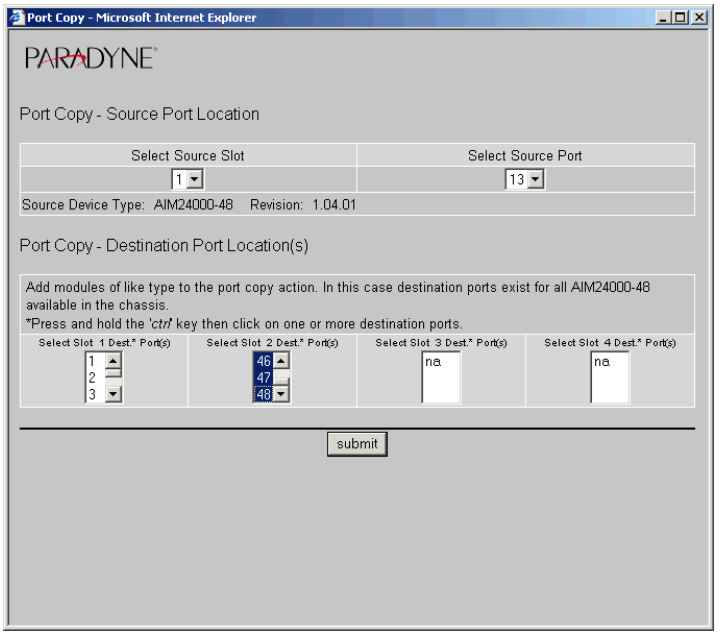

Port Copy - Microsoft Internet Explorer
PARADYNE
Port Copy - Source Port Location
Select Source Slot
Select Source Port
1
13
Source Device Type: AIM24000-48 Revision: 1.04.01
Port Copy - Destination Port Location(s)
Add modules of like type to the port copy action. In this case destination ports exist for all AIM24000-48 available in the chassis.
*Press and hold the 'ctrl' key then click on one or more destination ports.
Select Slot 1 Dest.* Port(s)
Select Slot 2 Dest.* Port(s)
Select Slot 3 Dest.* Port(s)
Select Slot 4 Dest.* Port(s)
1
2
3
46
47
48
na
na
submit

**Figure 5-10. Port Copy Screen, Multi-Slot Device**

2. Select a source slot and a source port.
3. For each slot, select the ports to which the source configuration will be copied.
4. Click on Submit. The configuration of the source port is copied to the destination port or ports.

## SNR Advanced Configuration

SNR settings may greatly affect ADSL performance. Do not change SNR settings unless so advised by your service provider.

### ▶ Procedure

To configure SNR settings:

1. Click on the Advanced Config tab. The Configuration SNR settings screen appears.

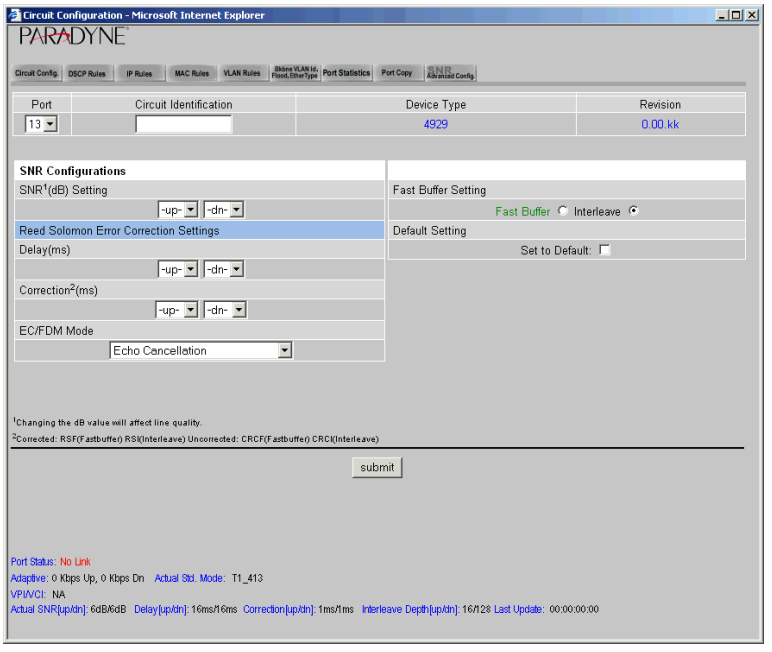



**Figure 5-11. Configuration SNR Settings Screen**

2. Select or enter the following parameters:

| Parameter | Description |
|---|---|
| Port | Select a port from the drop-down list. |
| SNR (dB) Setting | Specify the upstream and downstream Signal to Noise Ratio settings for the selected ports. |
| Reed Solomon Error Correction Settings: Delay | Specify the upstream and downstream Reed-Solomon delay. |
| Reed Solomon Error Correction Settings: Correction | Specify the upstream and downstream Reed-Solomon correction. |
| EC/FDM | Specify the upstream and downstream Echo Cancellation or Frequency Division Multiplexing mode. |

| Parameter | Description |
|---|---|
| Fast Buffer Setting | Specify the buffer setting: Fast or Interleave. |
| Default Setting | To return to the default settings when the Submit button is clicked on, click in the Set to Default check box. |

3. Click on Submit.

# Circuit Search

The Circuit Search screen allows you to locate a circuit by circuit ID, then display its Circuit Summary screen.

### ▶ Procedure

To use the Circuit Search:

1. Click on Circuit Search. The Circuit Search screen appears.
2. Select a Circuit ID from a drop-down list.

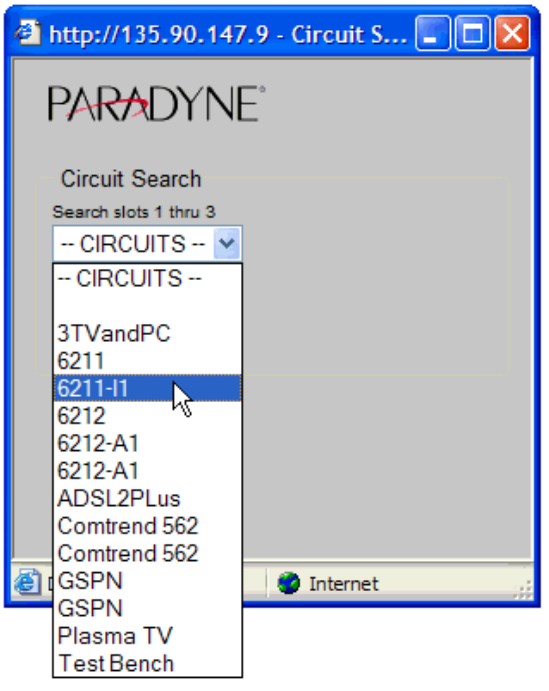



**Figure 5-12. Circuit Search Screen**

The Circuit Configuration screen for the specified circuit appears.

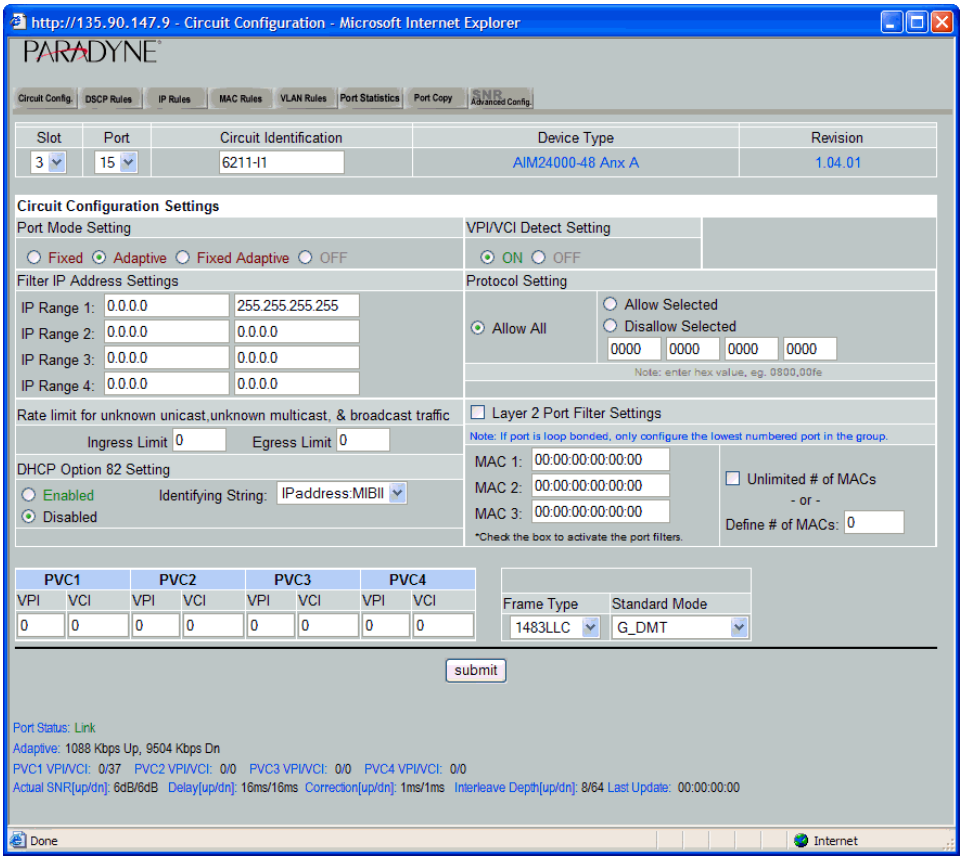



**Figure 5-13. Circuit Configuration Screen**

3. Display or modify parameters for the circuit. See *Circuit Summary* on page 5-2.

# DSLAM Users

The DSLAM Users screen shows the users that are using or have used the DSLAM or BLC. Users are identified by IP address.

To display DSLAM users, click on the DSLAM Users button. The DSLAM Users screen appears.

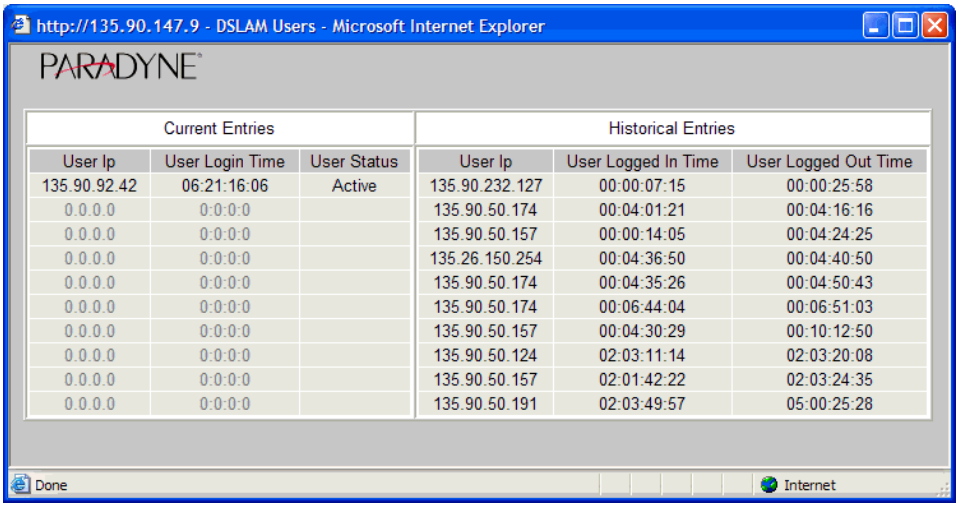



**Figure 5-14. DSLAM Users Screen**

Current entries show the login time and user status. Historical entries document the time each user logged in and logged out.

# Diagnostics

Use the Diagnostics screens to display diagnostic information and run tests.

## Loop Detect Summary

Click on Diagnostics to display the Loop Detect Summary screen.

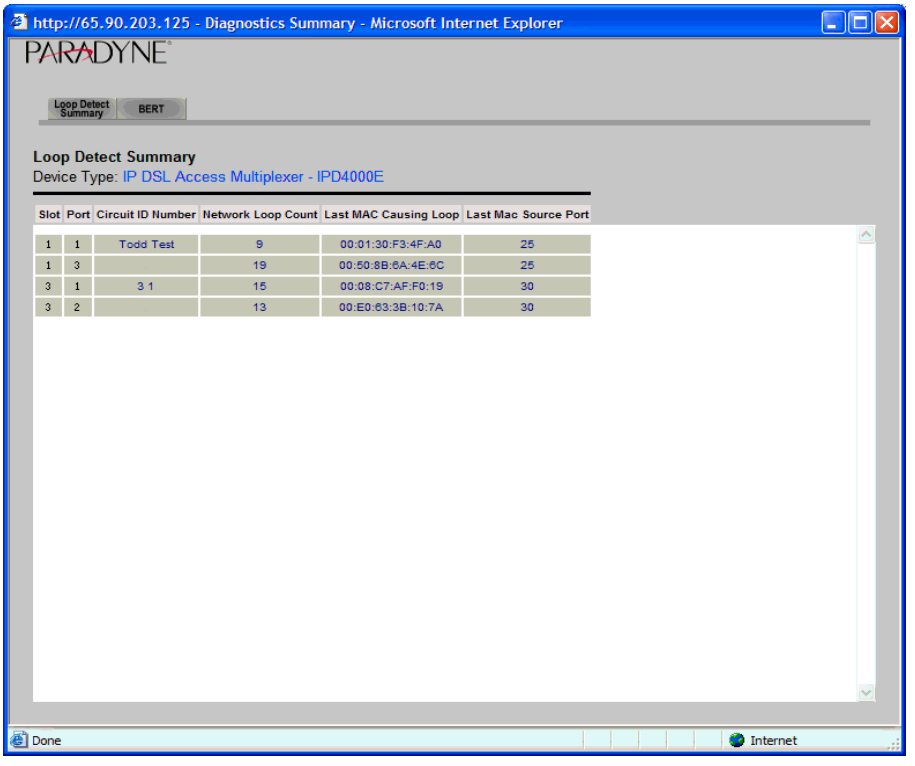



**Figure 5-15. Loop Detect Summary Screen**

If a loop is detected in the chassis, the Database Trusted/Untrusted Violation box will be checked on the related Port Statistics screen.

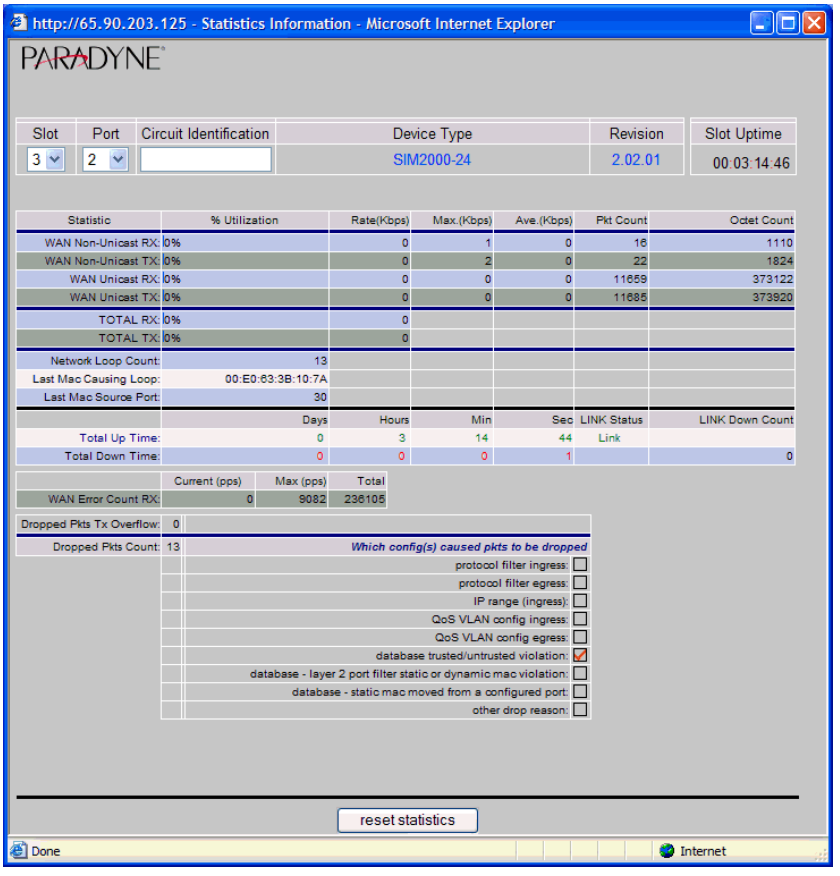



**Figure 5-16. Port Statistics Showing a Trusted/Untrusted Violation**

A packet coming from the network is considered Trusted and traffic coming from a modem is Untrusted. If a trusted MAC address (coming from the network) moves to a DSL port (Untrusted), it will be blocked for a minimum of 5 minutes and will increment the Dropped Packet counter for every packet from that source MAC address. Only the MAC address that is looped will be blocked and not be able to be forwarded to the backplane. A hard loop facing a T1 port in the DSLAM, for example, causes all packets to be dropped on that port.

## BERT Screen

A Bit Error Ratio Test (BERT) is available for SDSL ports.

### ▶ Procedure

To use the BERT screen:

1. Click on Diagnostics. The Loop Detect Summary screen appears.
2. Click on the BERT tab. The Bit Error Rate Test (BERT) screen appears.

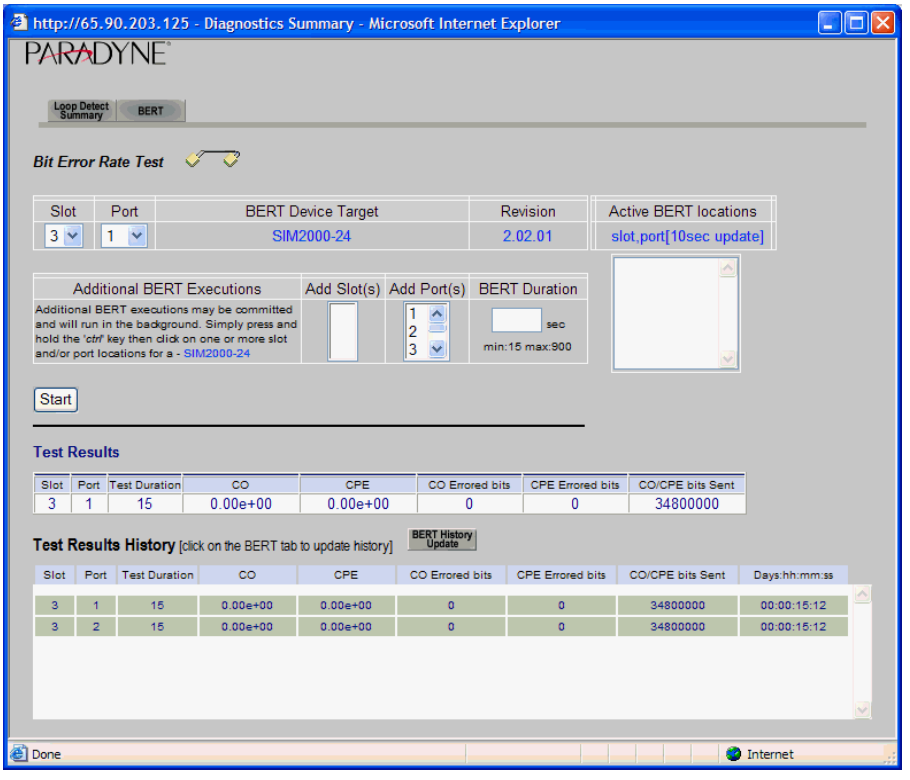



**Figure 5-17. BERT Screen**

3. Select one or more slots and one or more ports on which to conduct a test.
4. Specify a test duration of 15 to 900 seconds, then click on Start.

   Upon test completion, results are displayed at the bottom of the screen.

# Virtual Front Panel Buttons

# 6

## Overview

The depiction of the front panel of some devices includes buttons not found on the actual hardware:

- DSLAM Interconnect Configuration button – Lets you specify and display the connection to the downstream DSLAM. See *DSLAM Interconnect Configuration (4929 and Micro DSLAM)* on page 6-2.
- EAPS button – Lets you set up an Ethernet Automatic Protection Switching arrangement. See *EAPS Button* on page 6-4.
- MAC and IGMP button – Displays the MAC and IGMP summary and search screens. See *MAC and IGMP Summary* on page 6-6.
- STATS button – Displays backplane statistics. See *Statistics Button* on page 6-11.
- Sub Button – Lets you change the device role from Subscriber to Provider or Provider to Subscriber. See *Sub Button* on page 6-13.

# DSLAM Interconnect Configuration (4929 and Micro DSLAM)

Use the DSLAM Interconnect Configuration screen to specify a port connected to a downstream DSLAM. This information is used to configure internal traffic flows. The screen is accessed using the blue button on the faceplate image.

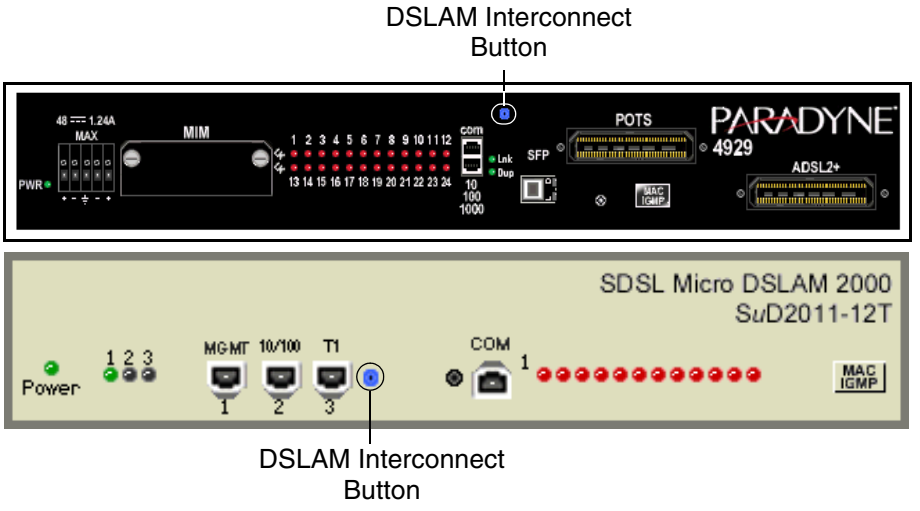



**Figure 6-1. DSLAM Interconnect Buttons on 4929 and SμD2011-12T**

## ▶ Procedure

To specify the port connected to a downstream DSLAM:

1. From the home screen, click on the blue button. The DSLAM Interconnect Configuration screen appears.

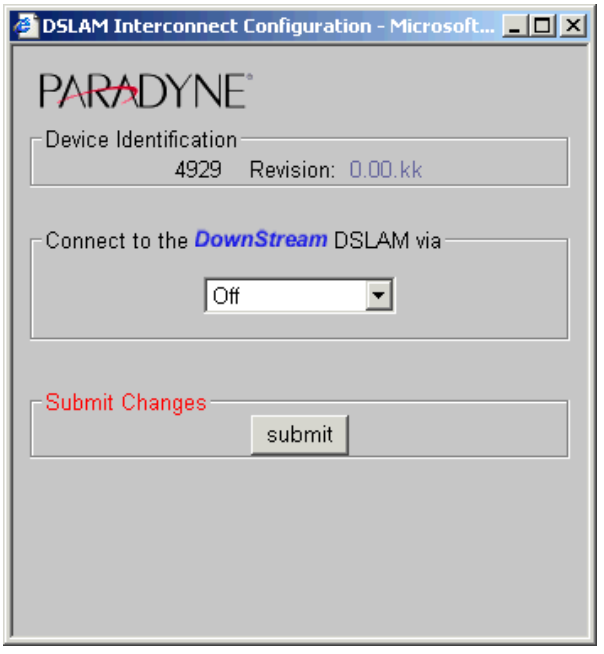



**Figure 6-2. DSLAM Interconnect Configuration Screen**

2. Select Off or a port from the drop-down list. For example, if this DSLAM is connected to a downstream DSLAM over the first MIM port, select MIMp1.
3. Click on Submit.

# EAPS Button

The EAPS button displays the Ethernet Automatic Protection Switching (EAPS) configuration screen. It allows you to set up an EAPS arrangement as described in RFC 3619.

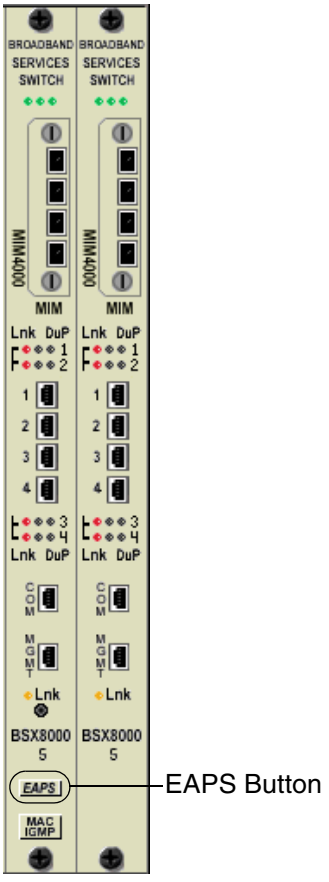



**Figure 6-3. EAPS Button on the BSX8000-5 Faceplate**

## ▶ Procedure

To display and configure EAPS parameters:

1. Click on the EAPS button. The EAPS Configuration screen appears.

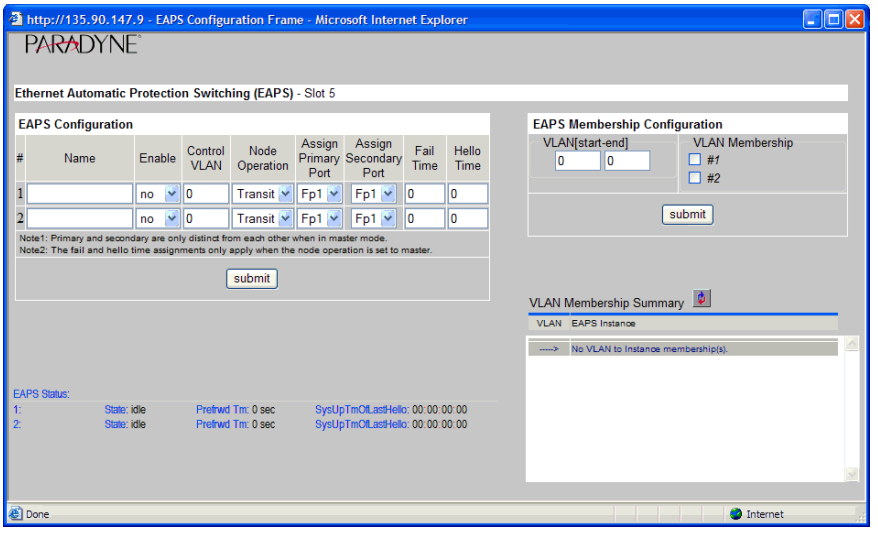

http://135.90.147.9 - EAPS Configuration Frame - Microsoft Internet Explorer
PARADYNE
Ethernet Automatic Protection Switching (EAPS) - Slot 5
EAPS Configuration
# Name Enable Control VLAN Node Operation Assign Primary Port Assign Secondary Port Fail Time Hello Time
1 no 0 Transit Fp1 Fp1 0 0
2 no 0 Transit Fp1 Fp1 0 0
Note1: Primary and secondary are only distinct from each other when in master mode.
Note2: The fail and hello time assignments only apply when the node operation is set to master.
submit
EAPS Membership Configuration
VLAN[start-end]
VLAN Membership
#1
#2
submit
VLAN Membership Summary
VLAN EAPS Instance
----> No VLAN to Instance membership(s).
EAPS Status:
1: State: idle Preftrwd Tm: 0 sec SysUpTmOfLastHello: 00:00:00:00
2: State: idle Preftrwd Tm: 0 sec SysUpTmOfLastHello: 00:00:00:00
Done
Internet

**Figure 6-4. EAPS Configuration Screen**

2. Select or enter the following EAPS Configuration parameters:

| Parameter | Description |
|---|---|
| Name | Specify a unique name for this configuration. |
| Enable | Specify whether this configuration is enabled for use (y for yes and n for no). |
| Control VLAN | Specify the control VLAN ID. This is used to send link down messages to the master node. |
| Node Operation | Specify whether this is the Master node or the Transit node. |
| Assign Primary Port | Specify the number of the port that normally will be used for the Ethernet connection. |
| Assign Secondary Port | Specify the number of the port that will be used if the primary connection fails. |
| Fail Time | Specify the amount of time, in seconds, the master node awaits a health check frame before declaring a ring-fault state and unblocking its secondary port. |
| Hello Time | Specify the frequency of health check frame transmissions. |

3. Select or enter the following EAPS Membership Configuration parameters:

| Parameter | Description |
|---|---|
| VLAN [start-end] | Specify the range of VLANs participating in this EAPS configuration. Only traffic with these 802.1q tags are allowed to traverse the EAPS ring. |
| VLAN Membership | Specify whether the VLAN range can use port 1, port 2, or both. |

4. Click on Submit.

# MAC and IGMP Summary

Use the MAC-IGMP button to access the MAC and IGMP Summary screen.

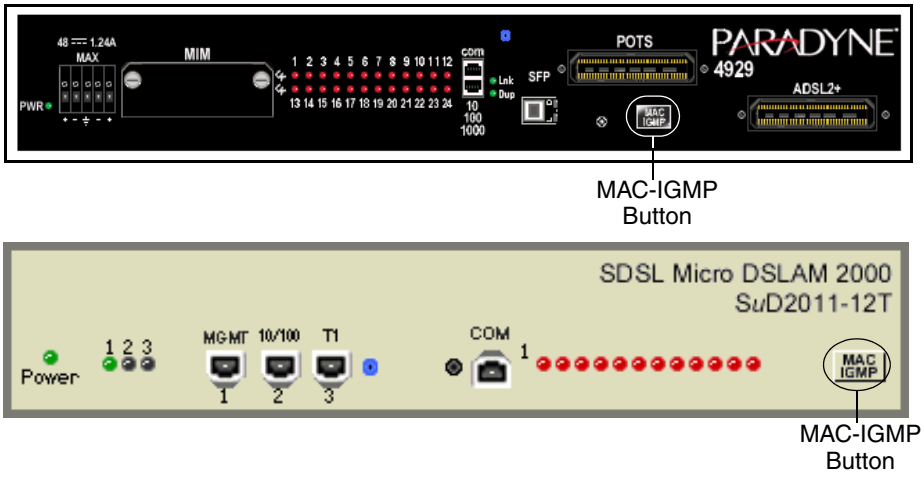



**Figure 6-5. MAC and IGMP Summary Button on 4929 and Sμd2011-12T**

## ▶ Procedure

To view the MAC and IGMP Summary screens:

1. From the home screen, click on the MAC-IGMP button. The MAC Summary screen appears.

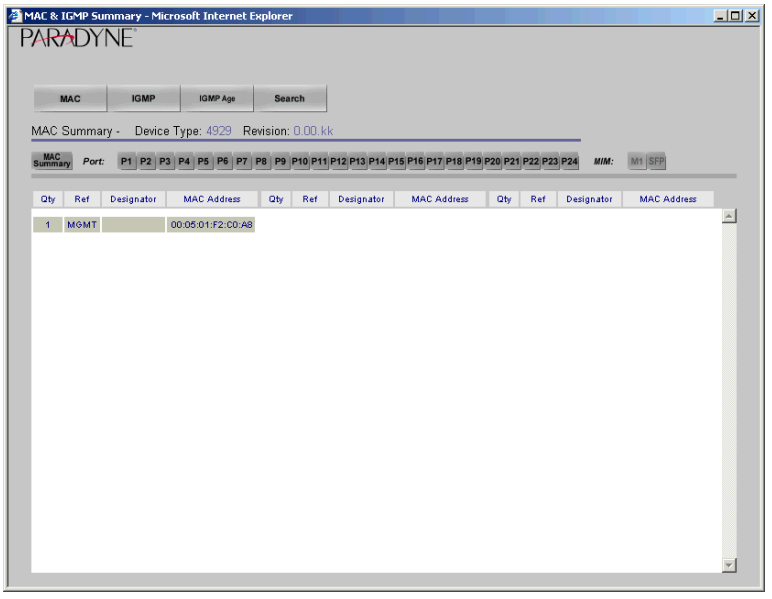

MAC & IGMP Summary - Microsoft Internet Explorer
PARADYNE
MAC
IGMP
IGMP Age
Search
MAC Summary - Device Type: 4929 Revision: 0.00.kk
MAC Summary
Port:
P1 P2 P3 P4 P5 P6 P7 P8 P9 P10 P11 P12 P13 P14 P15 P16 P17 P18 P19 P20 P21 P22 P23 P24
MIM:
M1 SFP
Qty Ref Designator MAC Address Qty Ref Designator MAC Address Qty Ref Designator MAC Address
1 MGMT 00:05:01:F2:C0:A8

**Figure 6-6. MAC Summary Screen**

2. Click on a Port or MIM button to see specific entries in the MAC table, or click on MAC Summary to see all entries.

3. Click on the IGMP tab to display the IGMP table. Click on a Port or MIM button to see specific entries in the IGMP table, or click on IGMP Summary to see all entries.

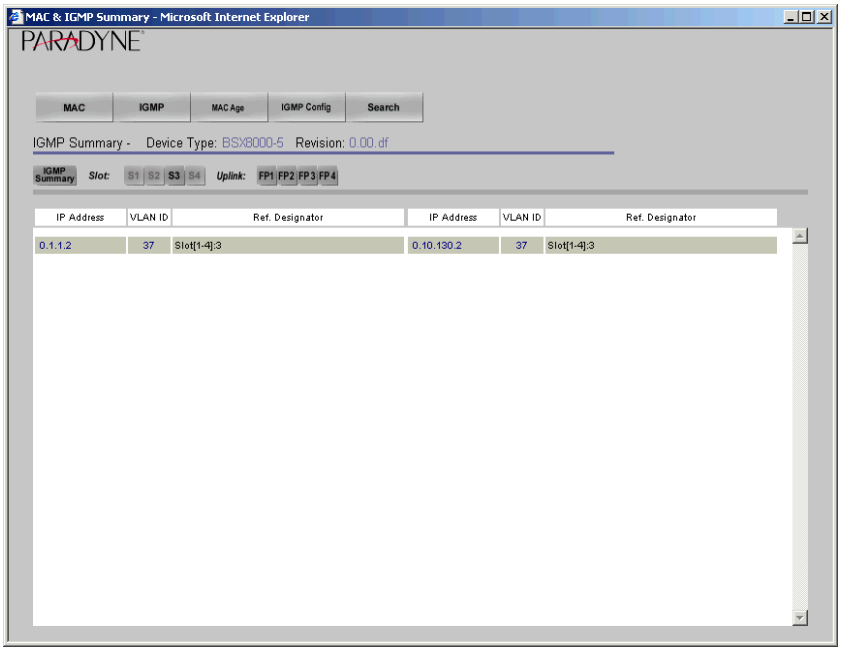



**Figure 6-7. IGMP Summary Screen**

4. Click on the IGMP Age tab to set the IGMP age and enable or disable IGMP proxy. The IGMP Age screen appears.

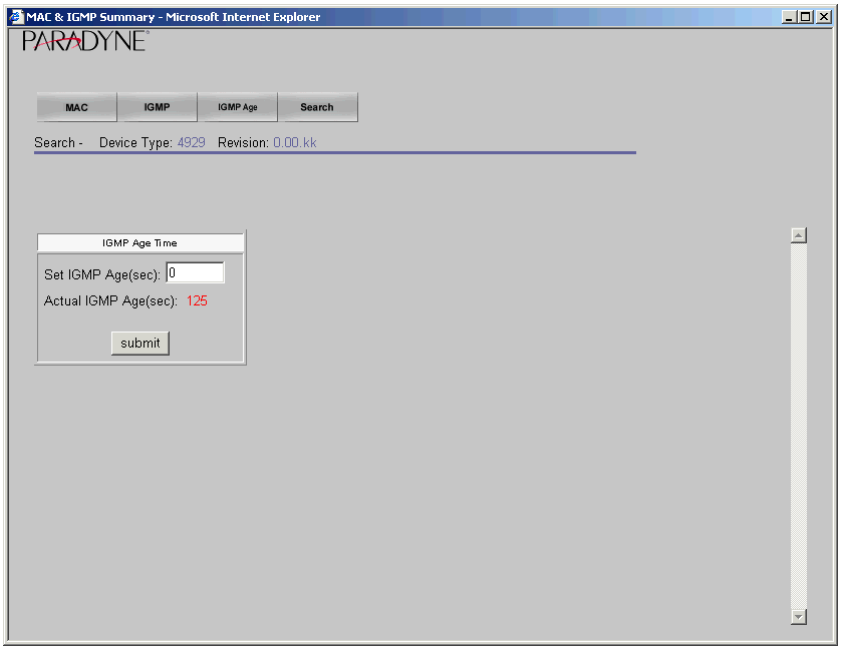



**Figure 6-8. IGMP Age Screen**

5. Enter or select the following:

| Parameter | Description |
|---|---|
| IGMP Age Time | Specify an IGMP age interval, in seconds. This should be twice the query rate of your router. |

6. To search for MAC or IGMP table entries, click on the Search tab. The Search screen appears.

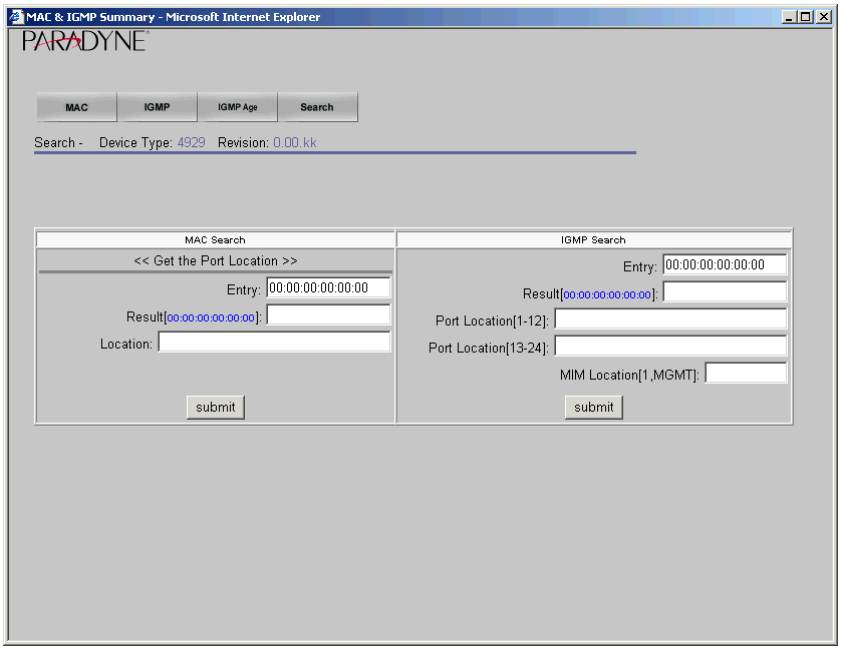



**Figure 6-9. MAC and IGMP Search Screen**

7. Enter a MAC address to search for a MAC table entry, or an IP address to search for an IGMP table entry.
8. Click on the appropriate Submit button.

# Statistics Button

The STATS button displays statistics for the device on which the button is provided.

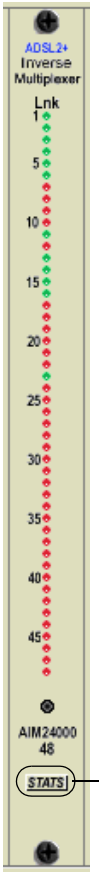



**Figure 6-10. STATS Button on the AIM24000-48 Faceplate**

To display device statistics, click on the STATS button. The Backplane Statistics screen appears.

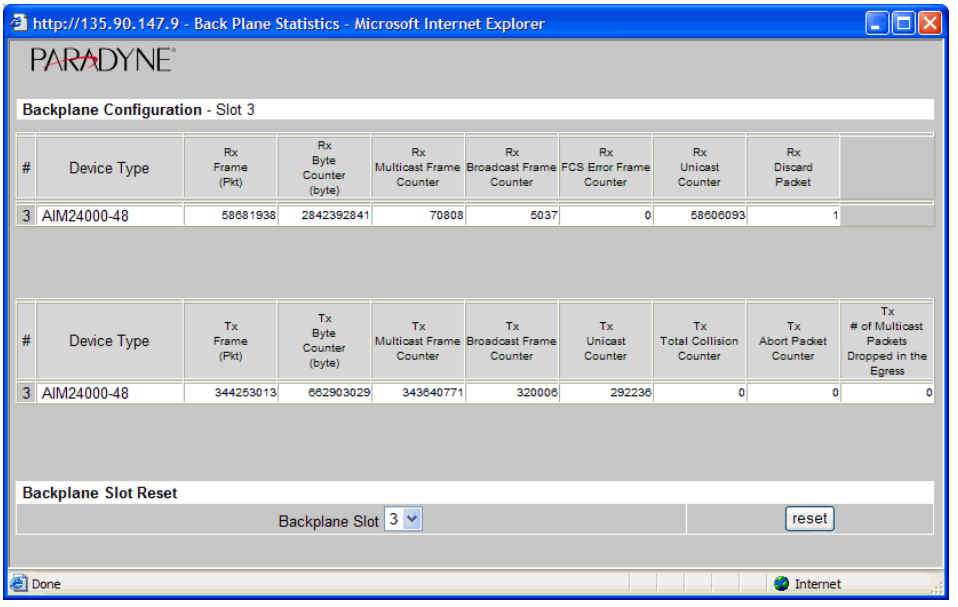

http://135.90.147.9 - Back Plane Statistics - Microsoft Internet Explorer
PARADYNE
Backplane Configuration - Slot 3
# | Device Type | Rx Frame (Pkt) | Rx Byte Counter (byte) | Rx Multicast Frame Counter | Rx Broadcast Frame Counter | Rx FCS Error Frame Counter | Rx Unicast Counter | Rx Discard Packet
3 | AIM24000-48 | 58681938 | 2842392841 | 70808 | 5037 | 0 | 58606093 | 1
# | Device Type | Tx Frame (Pkt) | Tx Byte Counter (byte) | Tx Multicast Frame Counter | Tx Broadcast Frame Counter | Tx Unicast Counter | Tx Total Collision Counter | Tx Abort Packet Counter | Tx # of Multicast Packets Dropped in the Egress
3 | AIM24000-48 | 344253013 | 662903029 | 343640771 | 320006 | 292236 | 0 | 0 | 0
Backplane Slot Reset
Backplane Slot 3
reset
Done
Internet

**Figure 6-11. Backplane Statistics Screen**

# Sub Button

The Sub button displays the Subscriber Select screen, from which you can specify whether the device is a Subscriber or a Provider unit.

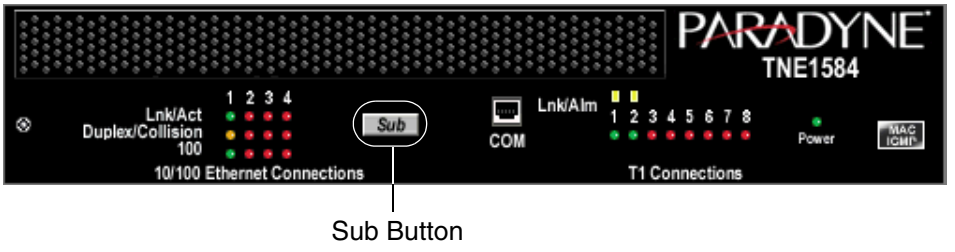



**Figure 6-12. Sub Button on the TNE1584 Faceplate**

## ▶ Procedure

1. To specify the device role, click on the Sub button. The Subscriber Select screen appears.

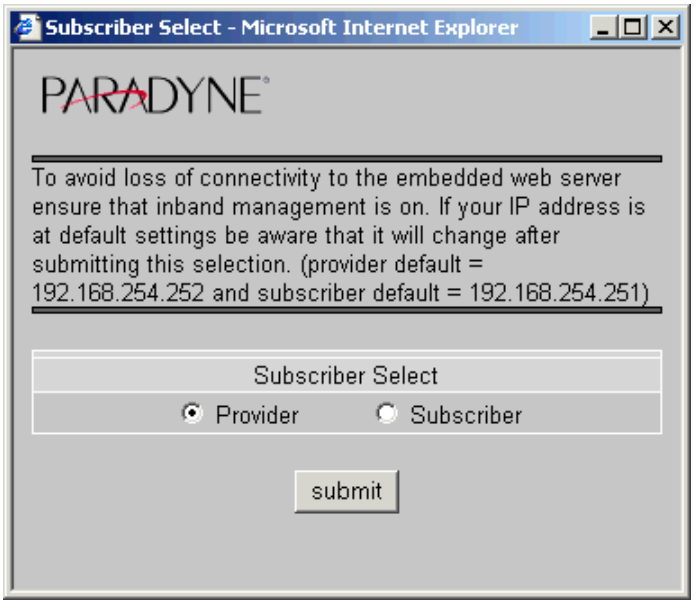

Subscriber Select - Microsoft Internet Explorer
PARADYNE
To avoid loss of connectivity to the embedded web server ensure that inband management is on. If your IP address is at default settings be aware that it will change after submitting this selection. (provider default = 192.168.254.252 and subscriber default = 192.168.254.251)
Subscriber Select
Provider
Subscriber
submit

**Figure 6-13. Subscriber Select Screen**

2. Click in Provider or Subscriber, then click on Submit.

### NOTE:

Because the Provider unit has a different default IP address than a Subscriber unit, when you change device roles you lose connectivity through the web interface.

# Troubleshooting the NMS

# 7

## Problems and Solutions

The following sections describe problems you may encounter in using the NMS.

### PC Cannot Locate Web Server

The PC being used to access NMS keeps a record of IP (Internet Protocol) and MAC (Medium Access Control) addresses in its local ARP (Address Resolution Protocol) cache. If the same computer is used to access NMS through the local management port and then again to access NMS through a network connection, the local ARP cache can prevent the computer from "finding" the embedded web server. Though the ARP cache will eventually clear itself as entries time out, it can also be cleared manually:

1. Click on the Windows Start button.
2. Select Run.
3. Type **cmd** and click on OK to open a command prompt.
4. At the prompt, type

   ```
   arp -a
   ```

   and press the Enter key. This will return a list of all the IP Addresses in the computer's ARP cache.
5. If the IP address of the Micro DSLAM, Mini DSLAM or IP DSLAM MUM you wish to clear is listed, type:

   ```
   arp -d [the IP Address]
   ```

   at the prompt and press the Enter key.

### Lost Web Server Connection

The web server connection will be lost whenever the Micro DSLAM, Mini DSLAM or IP DSLAM's IP Address is changed.

1. Close all browser windows.
2. Open a new browser window.

3. Enter the new IP address in the address field at the top of the browser window and press the Enter key.

## Cannot Establish Web Server Connection From Within Network

The Inband MGMT option (in the System Configuration Window) must be selected in order for NMS to be network accessible. To verify:

1. Connect your PC to the MGMT port on the front of the Micro DSLAM, Mini DSLAM or uplink module.
2. Click the System Configuration button in the administration panel of the NMS Main Window.
3. If the Inband MGMT box is not checked, click it so that a checkmark appears.
4. Click on the Submit button.

## Web Pages Are Loading Slowly

If NMS pages are accessible but refreshing slowly, close all browser windows and re-launch the application. If the problem continues, you may be encountering one of the following conditions:

- Too Many Users – NMS supports up to three Superusers or three General Users simultaneously. The system may experience a slowdown if there are more than three users at a time. Likewise, both classes of users cannot log in at the same time; attempts at such will result in a "Server Busy..." warning message.
- Inband Connection Speed Not Set Appropriately – The speed setting may need to be increased if you are accessing the system via an inband connection from a remote customer site (e.g., through a provisioned DSL connection). As an example, a 128 kbps IDSL connection is generally sufficient for NMS access although it is possible for heavy traffic to cause delays when downloading a web page.
- Network Congestion – Extensive network congestion may impact NMS performance due to the fact that the embedded web server powering NMS is a TCP/IP device. Under heavy congestion, you will notice most other network tasks experiencing a slowdown as well.

# Connector Pin Assignments

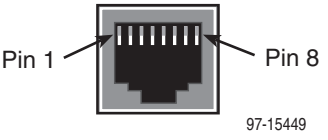
# A

## 10/100BaseT MGMT Connector

The MGMT port is an 8-pin modular jack supporting 10/100BaseT.

**Table 1. 10/100BaseT Pinouts**

| Signal | Pin |
|---|---|
| Transmitted Data + | 1 |
| Transmitted Data – | 2 |
| Received Data + | 3 |
| Unused | 4 |
| Unused | 5 |
| Received Data – | 6 |
| Unused | 7 |
| Unused | 8 |



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